SAMPLE QUESTION PAPER
ENGLISH CORE (Code No. 301)
CLASS-XII-(2024-25)

Time allowed: 3 Hrs.   **Maximum Marks: 80**

General Instructions
Read the following instructions very carefully and strictly follow them:

i. *This question paper has 13 questions. All questions are compulsory.*
ii. *This question paper contains three sections:*
   Section A: Reading Skills,
   Section B: Creative Writing Skills
   Section C: Literature.
iii. *Attempt all questions based on specific instructions for each part. Write the correct question number and part thereof in your answer sheet.*
iv. *Separate instructions are given with each question/part, wherever necessary.*
v. *Adhere to the prescribed word limit while answering the questions.*

SECTION A
READING SKILLS   **(22 marks)**

1.   Read the following passage carefully:

12

(1) In a room filled with people, each face illuminated by the soft glow of their smartphones, moments drift away like autumn leaves in the wind. The constant hum of notifications fills the air, punctuating conversations like an incessant drumbeat. Every vibration or ping sends fingers flying to screens, a response ingrained by years of digital conditioning. The once-reliable tick-tock of analog timepieces has been overshadowed by the constant flicker of notifications on the wrist watch, blurring the boundaries between the virtual and the real.

(2) Anxiety gnaws at the edges of consciousness when the phone is out of reach, a phantom limb syndrome that leaves us feeling incomplete without our digital appendage. The fear of missing out permeates every moment spent away from the screen, driving us to constantly check for updates and notifications.

(3) Thumbs move with the speed and precision of skillful pianists, tapping out messages and scrolling through feeds with practiced ease. Yet amidst the flurry of activity, the true rhythm of life remains unheard, drowned out by the dissonance of digital noise. The weight of constant connectivity forms a hunch upon our shoulders, a physical manifestation of the burden we carry in an age of information overload. Our minds are perpetually on high alert, scanning for the next wave of excitement that comes with each like, share, or comment.

(4) And yet, for all our efforts to stay connected, we find ourselves increasingly isolated in a sea of digital faces. Genuine connections are fleeting, drowned out by the constant clamour for attention. In the pursuit of digital validation, we sacrifice the wealth of lived experience, trading meaningful moments for fleeting glimpses of connection. The true essence of life lies not in the pixels on a screen, but in the depth of human connection and the richness of shared experiences

(5) As we navigate this brave new world of constant connectivity, let us not forget the value of presence and the beauty of being fully engaged in the moments that matter most. For in the end, it is not the number of likes or followers that defines us, but the depth of our connections and the richness of our experiences that truly matter.

Created for Academic Usage / 421 words

Answer the following questions, based on the passage above.

I. According to paragraph 1, what effect do smartphone notifications have on the people in the room?   1

II. How does the author use the metaphor of 'autumn leaves in the wind' to interpret the passing of time in the setting described?   1

III Read and complete the following sentence suitably.   1
The phrase '*a phantom limb syndrome that leaves us feeling incomplete without our digital appendage'* suggests that just as an amputee might feel pain in a limb they no longer have, individuals can feel a sense of loss or incompleteness when they are separated from their digital devices.
Choose the correct response from the two options to complete the sentence.
The concern this analogy points towards is about _____.

     A. a deep (psychological) dependence on technology for a sense of wholeness or connection
     B. excessive physical damage that can be caused due to constant use of digital devices

IV Complete the following suitably with ONE advantage, with reference to paragraph 2.
Designating specific hours each day to intentionally avoid checking digital devices can help _____.   1

V Why does the writer refer to digital noise as 'dissonance' in paragraph 3?   1
Because-
     A. It creates a jarring and chaotic environment that disrupts focus.
     B. It contributes to a sense of overload, overwhelming the senses.
     C. It interferes with our ability to engage with meaningful aspects of our life.
     D. It induces stress by interrupting with regular updates about the device.

VI. Provide ONE textual evidence with reference to paragraph 3, to prove the following: 1
The need to be perpetually engaged with digital notifications manifests in the body.

VII. In the line, 'Yet amidst the flurry of activity, the true rhythm of life remains unheard…,' what does the phrase 'true rhythm of life' refer to? (Paragraphs 3-4)   2

VIII Complete the analogy with ONE word from paragraph 4.   1
whisper: quietly: _____: loudly
     A. validation
     B. fleeting
     C. essence
     D. clamour

IX Why is it fair to say that the statement 'And yet, for all our efforts to stay connected,   1
we find ourselves increasingly isolated in a sea of digital faces' from paragraph 4,
employs irony?
  A. Despite the intent to connect more effectively, the result is the opposite.
  B. The writer mocks the seriousness with which people approach digital
     connectivity.
  C. The writer exaggerates the effects of digital connectivity to highlight its impact.
  D. Use of 'a sea of digital faces' to symbolically represent digital platforms.

X Assess the potential challenges OR benefits of relying on survey outcomes for   2
designing health interventions, as outlined in paragraph 5.

2. Read the following carefully.   10

(1) Introduction:
In the hasty lifestyle of today's world, the choice of snacks can greatly impact one's health
and well-being. This case study aims to analyse the preference for seasonal fruits compared
to packaged snacks among different age groups and the implications for overall health.

(2) Methodology:
A survey was conducted among individuals across various age groups, ranging from
children to seniors, to determine their snacking preferences. Participants were asked to
indicate their preferred snack choices and provide reasons for their preferences. The data
was then analysed to identify trends and patterns among different age demographics.

(3) Survey Examination:
The survey encompassed a comprehensive examination of snacking habits, including not
only preferred snack choices but also delving into the underlying motivations and influences
guiding these choices. Beyond mere preference, participants were encouraged to articulate
the reasons behind their selections, providing invaluable insights into the multifaceted nature
of snacking behavior.

(4) Results:
The survey results revealed interesting insights into snacking preferences among different
age groups:

Age-group	%	Preferred snack	Reasons for preference
Children	77	Seasonal fruits	Taste, Health benefits, Parental guidance
Teenagers	65	Packaged snacks	Convenience, Taste, Peer influence
Young adults	52	seasonal fruits and packaged snacks	Transitional lifestyle(college, beginning careers, and establishing independence), Health consciousness, Convenience
Middle-aged	83	Seasonal fruits	Freshness, Nutrition, Health consciousness
Elderly	90	Seasonal fruits	Health benefits, Digestive ease

(5) Implications for Interventions:
By discerning the diverse preferences among different age groups, policymakers and health
practitioners can tailor interventions to address specific demographic needs. For instance,
targeting educational campaigns towards parents could empower them to instill healthy
eating habits in their children from an early age. Concurrently, efforts to mitigate the

influence of advertising and peer pressure on teenagers could involve regulatory measures and educational initiatives aimed at promoting critical thinking and informed decision-making. Furthermore, the prominence of seasonal fruits as a preferred snack choice among middle-aged adults and senior's points towards the importance of promoting access to fresh produce and nutritional education across all age demographics.

(6) Conclusion:
The survey outcomes serve as a roadmap for designing targeted interventions that not only cater to diverse demographic needs but also nurture a culture of health and well-being. By harnessing the insights gleaned from this study, stakeholders can collaboratively work towards building healthier communities and promoting sustainable practices for generations to come.

Created for Academic Usage / 315 words

Answer the following questions, based on given passage.

I. Complete the following suitably. 1

   In the introduction, the researcher links a hasty lifestyle with the choice of snacks in the study to highlight_____.

II. What would the following be classified as? 1
   To examine snacking preferences across various age groups in detail, and assess health implications.
   Select the appropriate response.

   A. Primary purpose   B. Secondary objective
   C. Method of analysis   D. Research outcome

III. Give **two** points to support why it is likely that fresh fruits were given as an option to the survey participants to choose from in the study on snacking preferences. 2

IV. Paragraph 3 includes words – 'motivations' and 'influences.' 1
   Classify the following sentences as 'influence' or 'motivation':

   Sentence 1: Peer pressure leads teenagers to prefer packaged snacks over healthier options.
   Sentence 2: The drive to maintain health as one ages makes middle-aged adults to choose seasonal fruits.

V. **Read the following:** 1

   Seema regularly enjoys snacking on chips and cool drinks while watching movies. Mohan, her neighbour, prefers to snack on oranges and also some nuts occasionally. Arindam, who lives across, often tends to eat a mix of carrot sticks and instant noodles, in between meals.
   Select the option that identifies the correct demographic Seema, Mohan and Arindam belong to.

   A. Seema – young adult; Mohan – teenager; Arindam -middle-age
   B. Seema - teenager; Mohan – middle-age; Arindam -child
   C. Seema – young adult; Mohan – child; Arindam - teenager
   D. Seema - teenager; Mohan – elderly; Arindam -young adult

VI. Although children, middle-aged, and elderly groups all prefer seasonal fruits, why is the preference percentage highest among the elderly?   1

VII. Analyse how targeted interventions based on the diverse snacking preferences of different age groups can lead to improved health outcomes. (Paragraph 5)   2

VIII What is the ultimate goal for stakeholders, based on the insights from the study?   1
    A. Increase profitability through enhanced snack marketing
    B. Building healthier communities
    C. Reducing the cost of healthcare services
    D. Expanding the range of available snack product

SECTION B
CREATIVE WRITING SKILLS (18 marks)

3. Attempt **any one** of the two, (A) or (B), in about 50 words   **1x4=4**

A. Your school is planning to conduct an inter-class seminar on the topic–The Importance of Mental Health–to create awareness in adolescents. As the head of the organising committee, write a notice to inform all students about the seminar and invite registrations from classes XI-XII. Include other necessary details. Put your notice in a box.

OR

B. Your school is organising an inter-House webinar on enhancing coding skills, As the President of the Computer Club, write a notice to inform all House members from IX-XII about the webinar and specify the number of registrations invited per House. Include other necessary details. Put your notice in a box.

4. Attempt **any one** of the two, (A) or (B), in about 50 words.   **1x4=4**

A. Draft an invitation in not more than 50 words from Vani Gopalan, Chief Project Officer of an NGO, for the launch of the 'Each One Teach One' programme, addressed to school Principals and Coordinators. Mention a compelling highlight of the programme along with other necessary details

OR

B. An invitation had been issued by Mr. Cherian, the HR Head of your company inviting you for the company picnic. As Joseph Vijayan, Asst. Manager, Operations, draft a reply in not more than 50 words, consenting to attend.

5. Attempt **any one** of the two, (A) or (B), in 120 150 words   **1x5=5**

A. Financial literacy is increasingly recognised as a crucial 21st-century skill for young individuals. Write a letter to the editor of a local daily discussing the benefits of providing financial literacy education to children. Also, suggest effective ways to raise awareness about the importance of this education among parents and guardians. You may use some of the given cues along with your own ideas to draft the letter. You are a counsellor, Chitra Mahapatra from Puri, Odisha.

- What are the long-term benefits of learning financial independence from a young age?
- Why is understanding the power of finances beneficial for young learners?
- Why skills learned during childhood tend to have a lasting impact.

OR

B. You are Maya Syiem from Shillong. You read the given advertisement and wish to apply for the post advertised. Write this job application along with your bio-data.

Join our Creative Team!
A renowned publishing house in Shillong
−A NEW WORLD−
is seeking a talented illustrator for children's books.
Creative individuals with a passion for storytelling through art, welcome.
Experience, not mandatory.
Team players with degree/ diploma in Fine Arts/ Graphic Design may apply with 5 samples
from portfolio illustrating a variety of work.
Write to the Project Lead, 23-C Rosewood Lane, Shillong-793005

Attempt **any one** of the two, (A) or (B), in 120 150 words **1x5=5**

6.

A. In an era of rapid globalisation and technological advancement, the preservation of cultural heritage remains a vital challenge, particularly for the youth. India continues to navigate the complexities of maintaining tradition alongside modernity. Write an article exploring the role of cultural heritage in shaping the identities of today's Indian youth. Provide examples to illustrate your points wherever necessary. You may use some of the given cues along with your own ideas. You are Arti Nirula of Class XII-A.

- How have global interactions and technologies influenced or changed these traditional practices among today's youth?
- What are the benefits of preserving cultural heritage for young people? How does it contribute to their sense of identity and community?
- Suggest ways in which young people and institutions can work together to ensure the preservation of cultural heritage.

OR

B. You are Hina Aziz, student of Class XII-D and a member of the school magazine editorial board. Write a comprehensive report detailing the activities undertaken by students as part of the celebrations on Yoga Day. Include descriptions of the events, participation details, and the overall impact of these activities on the school community. You may organise your report by following - Who - What – When – Where – Why – How

SECTION C

7. **Read the following extracts and answer the questions for any one of the given two-A or B** 1x6=6

A Those who prepare green wars,
wars with gas, wars with fire,
victory with no survivors,
would put on clean clothes
and walk about with their brothers
in the shade, doing nothing. (poem - *Keeping Quiet*)

I. What is a common outcome of all the wars described?

II What does the imagery of 'walking about with their brothers in the shade' primarily represent?
   A. The readiness for further conflicts.
   B. A return to normal activities post-conflict.
   C. A moment of unity and peaceful reflection.
   D. The physical environment of a typical war zone.

III. Complete the following suitably.
The putting on of 'clean clothes' by the warmongers, symbolises_____.

IV. Select the correct option from those given in brackets, to fill in the blank.

The excerpt tells us that the speaker _____ (condemns / glorifies) the destructive nature of modern warfare.

V. Read the assertion and the reason below, with reference to the given extract.

Assertion: The poet advocates for 'doing nothing' as a way to prevent the devastation of war.
Reason: 'Doing nothing' refers to a time for stopping any action for a few moments.

Choose the correct option regarding their relationship.

   A. Both the assertion and the reason are true, and the reason is the correct explanation of the assertion.
   B. Both the assertion and the reason are true, but the reason is not the correct explanation of the assertion.
   C. The assertion is true, but the reason is false.
   D. The assertion is false, but the reason is true.

VI. How can the message in the excerpt, about the outcome of wars be applied to promote peace?

OR

B While greedy good-doers, beneficent beasts of prey,
Swarm over their lives enforcing benefits

That are calculated to soothe them out of their wits,
And by teaching them how to sleep they sleep all day,
Destroy their sleeping at night the ancient way. *(poem-The Roadside Stand)*

I   Select the phrase that suggests the following:
The so-called aids are not offered out of genuine care or consent but are imposed in a controlling and perhaps unwelcome manner.

II   What does the imagery of 'swarm' NOT represent in the given extract?
      A. Coordinated help   B. Overwhelming force
      C. Discomfort and chaos   D. Neglect of individual needs

III Complete the following suitably.

In the line, 'destroy their sleeping at night the ancient way,' the phrase 'the ancient way' refers to_____.

IV. Select the correct option from those given in brackets, to fill in the blank.

The poet has used phrases like 'greedy good-doers' and 'beneficent beasts of prey' to illustrate the _____ (irony/satire) in the situation where those claiming to help the rural poor actually impose self-serving and detrimental actions on them.

V.   Read the assertion and the reason below, with reference to the given extract.

Assertion: The poet criticizes the way the rural poor are treated by benefactors, suggesting it instills ambition.
Reason: The interventions are overwhelmingly calming and lead to a loss of critical thinking among the rural poor.
Choose the correct option regarding their relationship:
 A. Both the assertion and the reason are true, and the reason is the correct explanation of the assertion.
 B. Both the assertion and the reason are true, but the reason is not the correct explanation of the assertion.
 C. The assertion is true, but the reason is false.
 D. The assertion is false, but the reason is true.

VI. State in one sentence, what cautionary advice your address to the rural poor from the extract, is most likely to include.

8.   Read the following extracts and answer the questions for any one of the given two, (A) or (B)   **4x1=4**

A. To visit Antarctica now is to be a part of that history; to get a grasp of where we've come from and where we could possibly be heading. It's to understand the significance of Cordilleran folds and pre-Cambrian granite shields; ozone and carbon; evolution and extinction. When you think about all that can happen in a million years, it can get pretty mind-boggling. Imagine: India pushing northwards, jamming against Asia to buckle its crust and form the Himalayas; South America drifting off to join North America, opening up the Drake Passage to create a cold circumpolar current, keeping Antarctica frigid, desolate, and at the bottom of the world.   (*Journey to the End of the Earth*)

I.   Complete the following suitably.
The passage suggests that visiting Antarctica offers insight into geological processes and

Earth's history by _____.

II. How does the author imply the role of geological knowledge in understanding the Earth's past and potential future changes?

III. The writer says, 'When you think about all that can happen in a million years, it can get pretty mind-boggling.'
What is the most likely impact on the writer?
   A. Feels overwhelmed by the vastness of geological time scales.
   B. Is uneasy about the rapid pace of geological changes.
   C. Feels indifferent towards geological phenomena.
   D. Is surprised by the lack of significant geological events over a million years.

IV. How might understanding the geological processes mentioned in the passage help scientists in predicting and mitigating future environmental changes, particularly in polar regions?

OR

B. I cried aloud, shaking my head all the while until I felt the cold blades of the scissors against my neck, and heard them gnaw off one of my thick braids. Then I lost my spirit. Since the day I was taken from my mother I had suffered extreme indignities. People had stared at me. I had been tossed about in the air like a wooden puppet. And now my long hair was shingled like a coward's! In my anguish I moaned for my mother, but no one came to comfort me. Not a soul reasoned quietly with me, as my own mother used to do; for now, I was only one of many little animals driven by a herder.
(*Memories of Childhood: The Cutting of My Long Hair*)

I. Complete the following suitably.
Zitkala-Sa's description of her experience at the boarding school conveys a sense of abandonment through her portrayal of _____

II. List any one emotion that Zitkala-Sa experiences as her hair is being cut.

III. Select the suitable option to complete the following.
The metaphor of being 'tossed about in the air like a wooden puppet' contribute to the reader's understanding of Zitkala-Sa's feelings of being _____.
   A. forced to interact with others
   B. manipulated and controlled
   C. preached at and insulted
   D. made to exist like toy animals

VI In what ways does the imagery of her 'long hair shingled like a coward's' symbolise the erasure of Zitkala's cultural heritage and the imposition of Western norms?

9. **Read the following extracts and answer the questions for any one of the given two, A or B.** 1x6=6

A. What a thunderclap these words were to me! Oh, the wretches; that was what they had put up at the town-hall! My last French lesson! Why, I hardly knew how to write! I should never learn anymore! I must stop there, then! Oh, how sorry I was for not learning my lessons, for seeking birds' eggs, or going sliding on the Saar! My books, that had seemed such a nuisance a while ago, so heavy to carry, my grammar, and my history of the saints, were old friends now that I couldn't give up. And M. Hamel, too; the idea that he was going away, that I should never see him again, made me forget all about his ruler and how cranky he was.

(*The Last Lesson*)

I. What was the writer's purpose in using the metaphor of a 'thunderclap'?

II. Select the correct option from those given in brackets to fill in the blank.

The use of exclamatory marks in the first five sentences of the extract serves to express the speaker's _____ (hidden/ intense) emotions.

III. Complete the following suitably.
The activities of seeking birds' eggs and sliding on the Saar reveal two things about Franz's character before his change in perspective. First, his youthful carefree nature and second, his preference for _____.

IV. What is reflected through the shift in the speaker's perception of Mr. Hamel, conveyed through his readiness to forget the ruler?

V. Select the textual option that is closest to indicating a sense of panic.

    A. Oh, how sorry I was for not learning my lessons…
    B. Why, I hardly knew how to write!
    C. Oh, the wretches; that was what they had put up at the town-hall!
    D. And M. Hamel, too;

VI. What does the following line from the extract, showcase?

My books, that had seemed such a nuisance a while ago, so heavy to carry, my grammar, and my history of the saints, were old friends now that I couldn't give up.

    A. realization   B. confusion
    C. expectation   D. affirmation

OR

B. And survival in Seemapuri means rag-picking. Through the years, it has acquired the proportions of a fine art. Garbage to them is gold. It is their daily bread, a roof over their heads, even if it is a leaking roof. But for a child it is even more "I sometimes find a rupee, even a ten-rupee note," Saheb says, his eyes lighting up. When you can find a silver coin in a heap of garbage, you don't stop scrounging, for there is hope of finding more. It seems that for children, garbage has a meaning different from what it means to their parents. For the children it is wrapped in wonder, for the elders it is a means of survival.

(*Lost Spring – Stories of Stolen Childhood*)

I. What does Saheb's statement about finding money in the garbage reveal about his daily life and aspirations?

II. Select the correct option from those given in brackets to fill in the blank.
Describing garbage as 'gold' metaphorically elevates its value to the children, helping the reader understand the _____ (dynamic / desperate) conditions under which these children live, where even garbage can represent crucial economic resources.

III. Complete the following with a suitable reason.
Children continue to scrounge in the garbage because _____.

IV. How does the perception of garbage differ between children and adults in Seemapuri?

V. What is implied by the description of rag-picking as having 'acquired the proportions of a fine art' in the excerpt?
A. Rag-picking is an undesirable and simple task that anyone can do without effort.
B. Rag-picking has evolved into a complex skill that is valued within the community.
C. Rag-picking is a temporary activity that does not significantly impact the community.
D. Rag-picking has the status of an artistic hobby that children pursue for enjoyment.

VI. What is the reason for Saheb's eyes 'lighting up'?
A. The immediate experience of finding something valuable.
B. Discussing his findings with others.
C. Reminiscing about past findings in the garbage.
D. Planning future scavenging expeditions

10. Answer **any five** of the following six questions in 40 50 words each :　　　　**5x2=10**

I. Identify an instance of hope or resilience in 'Lost Spring' and analyse how it reflects one of the story's themes.
II. Interpret the use of visual imagery by Kamala Das in her poem to depict the passage of time.
III. What does the contrasting imagery of the church clock and the Prussian trumpets represent, in 'The Last Lesson'?
IV. How does the author's writing style in 'The Interview' affect the reader's understanding of the story?
V. Explain how the rattrap symbolises the dual aspects of human nature.　　(*The Rattrap*)
VI What factor/s were largely instrumental in the victory of the peasants in 'Indigo'?

11. Answer **any two** of the following three questions in 40 50 words each :　　　　**2x2=4**

I. Discuss the significance of the toy tiger in the climax of 'The Tiger King.'

II. Interpret the significance of both literal and metaphorical journeys in the story, 'The Third Level.'

III. How does Susan Hill subtly portray a blend of pessimism and optimism in 'On the Face of It'?

12. Answer **any one** of the following two questions, in about 120-150 words.　　　　**1x5=5**

A Analyse the poems, *A Roadside Stand* and *Aunt Jennifer's Tigers* for the theme of inequality and its impact on the bearers.

OR

B How do the characters of Sophie from 'Going Places' and Subbu from 'Poets and Pancakes' compare and contrast in terms of their aspirations, constraints, and the pursuit of their dreams?

13. Answer **any one** of the following two questions, in about 120-150 words   **1x5=5**

A The influence of belief in traditions such as religion, family bonds, or patriotism can be used to develop narrative techniques like setting, motivation, sources of conflict, and pacing. Analyse how the writer has incorporated such influences to good effect in the story, *The Enemy*. Support your answer with valid textual evidence.

OR

B Discuss the narrative techniques used by the author in *The Third Level.* How do these techniques effectively convey the themes of escapism and nostalgia? Provide specific examples from the text to support your analysis.

MARKING SCHEME
ENGLISH CORE (Code No. 301)
CLASS-XII-(2024-25)

General Instructions: -

1. *The Marking Scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, then due marks should be awarded accordingly.*

2. *If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note "Extra Question".*

3. *If more than one option is mentioned in the answer of multiple choice questions, then no marks to be awarded.*

	SECTION A: READING SKILLS (22 marks)	
1.	Answer the following questions, based on the passage above. (Descriptive Passage)	**12**
I	They lead to instant interruptions in conversations. [language / expression may vary but the idea should remain relevant]	1
II	It illustrates how moments are fleeting and unnoticed, lost amid the distractions of digital interactions / it illustrates how easily significant moments can drift away when overshadowed by the focus on technology [language / expression may vary but the idea should remain relevant]	1
III	A. a deep (psychological) dependence on technology for a sense of wholeness or connection	1
IV	reduce the anxiety associated with the need to constantly be connected	1
V	C. It interferes with our ability to engage with meaningful aspects of our life.	1
VI	Yes it does - develop a hunch / mind is constantly alert (any one)	1
VII	The phrase refers to the natural, meaningful, and often quieter moments that make up human existence and relationships—those that occur away from the digital chaos. The writer draws our attention towards the genuine life experiences, such as face-to-face conversations, quiet contemplation, enjoying nature, and real-world interactions, that are overlooked or drowned out by the constant noise of digital activity. [language / expression may vary but the idea should remain relevant]	2
VIII	D. clamour	1
IX	A. Despite the intent to connect more effectively, the result is the opposite. (Option B is satire, C is hyperbole and D is metaphor)	1

X	They are – (2 points to be elaborated for either) Benefits: Survey outcomes can offer a detailed understanding of the specific needs and preferences of various demographic groups, which can enhance the effectiveness of health interventions by making them more targeted and relevant. Additionally, using these data-driven insights can foster a sense of collaboration among stakeholders, promoting a unified approach towards health and sustainability. Challenges: Relying on survey outcomes may present challenges such as the risk of biases in the data collection process, which can twist results and lead to ineffective interventions. There's also the issue of survey fatigue among participants, potentially reducing engagement and the accuracy of the data gathered. Moreover, translating survey findings into practical interventions requires resources and continuous stakeholder commitment, which might not always be feasible.		2
2.	**Answer the following questions, based on given passage.**		**10**
I	… how busy daily routines influence people to opt for quick and convenient eating options, often at the expense of nutritional value		1
II	A. Primary purpose		1
III	The TWO points are – a) Health focus, as fruits are widely recognised for their health benefits, and this aligns with the study's goal to analyse snacking habits and their implications for health (making fresh fruits a relevant choice for understanding healthy snacking behaviours). b) Comparative analysis, as the study aims to compare the health implications of seasonal fruits versus packaged snacks. Including fresh fruits allows researchers to directly evaluate preferences between natural, healthier choices and processed, potentially less healthy alternatives.		2
IV	Influence – sentence 1 ; Motivation – sentence 2		1
V	D. Seema - teenager (taste and convenience) ; Mohan - elderly(health, digestive ease) ; Arindam -young adult (health and convenience)		1
VI	Due to their increased health needs and focus on foods that are easier to digest and nutritionally beneficial.		1
VII	Targeted interventions can effectively address specific health needs by focusing on the unique factors influencing each demographic's snacking choices. For example, educational campaigns for parents can foster early healthy eating habits in children, while initiatives for teenagers can reduce the impact of advertising and peer pressure, promoting wiser food choices. Also, ensuring that middle-aged and older adults have access to fresh produce supports ongoing health maintenance, directly contributing to overall improved health outcomes across the lifespan.		2
VIII	B. Building healthier communities.		1

SECTION B-CREATIVE WRITING SKILLS (18 marks)			
3.	Format – 1 Content -2 Accuracy of spelling and grammar -1		4
4.	A- (Card type formal / third person/ centre aligned) B- (Letter type- formal, first/ third person) Format – 1 Content -2 Accuracy of spelling and grammar -1		4
5.	Format -1 Content -2 Organisation -1 Accuracy of spelling and grammar -1		5
6.	Format – 1 Content -2 Organisation -1 Accuracy of spelling and grammar -1		5

A.	Article -Value points
	  ▪ Cultural heritage provides a strong sense of identity, helping young people connect with their roots and understand how historical influences shape their personal and community identities.
	  ▪ Exposure to one's own and other cultures promotes tolerance and appreciation, which are vital in today's globalised society. This helps youths navigate diverse social environments with respect and empathy.
	  ▪ Engaging with traditional arts, crafts, and practices can inspire creativity and innovation among youths, allowing them to reinterpret cultural expressions in ways that resonate with contemporary life.
	  ▪ Active participation in cultural festivals, rituals, and community events strengthens bonds among community members and enhances social cohesion, making cultural heritage a pivotal part of daily life for youths.
	  ▪ Incorporating cultural studies in education can increase awareness and pride among young people about their heritage, encouraging them to become advocates and preservers of their traditions.
	  ▪ By using technology to create appealing and accessible cultural content, such as virtual museum tours, digital storytelling, and social media campaigns, youths can be engaged with their heritage in formats they find relatable and exciting.		

B.	Cues lead to the eliciting of relevant response points		
SECTION C-LITERATURE (40 marks)			
7. Read the following extracts and answer the questions for any one of the given two-A or B			
A	Poetry (Flamingo)		**6**
I	Gaining victory with no survivors		1
II	C. A moment of unity and peaceful reflection		1
III	…a potential for change and renewal / a moment of pause and reflection / an act of cleansing of their actions /embracing a peaceful existence/ the possibility of transformation		1
IV	condemns		1
V	B. Both the assertion and the reason are true, but the reason is not the correct explanation of the assertion.		1
VI	Global leaders and communities can work toward more sustainable and peaceful solutions – Can be used to advocate for non-violent resolutions / peace		1

		negotiations in contemporary conflicts / Can be used to promote dialogue and understanding over aggression and warfare	1
B			
	I	enforcing benefits	1
	II	A. Coordinated help	1
	III	…the traditional and longstanding sleeping patterns and nighttime rituals that have been part of the rural community's lifestyle for generations (deeply rooted cultural practices) [The speaker suggests that the modern practices, possibly influenced by external forces such as urbanisation or industrialisation, disrupt the natural sleep patterns of the rural inhabitants – dilute their time-tested ways.]	1
	IV	irony	1
	V	D. The assertion is false, but the reason is true. (Correct assertion - The poet criticizes the way the rural poor are treated by benefactors, suggesting it dulls their senses : 'soothe them out of their wits')	1
	VI	Be wary of involvements by outsiders that might appear benevolent but could ultimately undermine your autonomy and dull your critical thinking abilities. [language / expression may vary but the idea should remain relevant]	1
8.		**Read the following extracts and answer the questions for any one of the given two, (A) or (B)**	**4**
A.			
	I	… exploring Cordilleran folds, granite shields, and environmental factors like ozone and carbon	1
	II	The author does so by linking geological events to Antarctica's environmental conditions, highlighting the significance of geological processes in shaping the planet's history and future trajectories.	1
	III	A. Feels overwhelmed by the vastness of geological time scales.	1
	IV	By providing insights into how geological events impact polar regions and influence global climate patterns.	1
	B		
	I	. …isolation and lack of support / absence of any solace or reassurance from others / being an animal to a herder thereby suggesting a loss of identity	1
	II	anguish/ sense of loss/ turmoil (any other relevant)	1
	III	B. manipulated and controlled	1
	IV	The imagery symbolises the forced assimilation and suppression of Indigenous culture, portraying the cutting of her hair as an act of cultural violence and the imposition of Western ideals of appearance and behaviour.	1
9.		**Read the following extracts and answer the questions for any one of the given two, A or B.**	**6**
A			
	I	To emphasise the suddenness and shock of Franz's understanding about the importance of his education./ To conveys the urgency and deep impact of this	1

		moment / To dramatically highlight how unexpected and jarring the realisation was to him – like the startling and instant nature of a thunderclap / To effectively captures the emotional intensity of the moment of deep regret and abrupt awakening experienced by Franz	
	II	intense	1
	III	…preference for play over study	1
	IV	It reflects a newfound respect and appreciation, overshadowing past fears of discipline and strictness.	1
	V	B. Why, I hardly knew how to write!	1
	VI	A. realisation	1
B			
	I	It highlights his precarious economic situation and his dependence on chance finds for small joys and possibly essential income, reflecting the dire poverty and limited opportunities available to him.	1
	II	desperate	1
	III	…finding valuable items like coins gives them hope of finding more	1
	IV	For children, garbage represents a source of wonder and potential treasure, whereas for adults, it is primarily a means of survival.	1
	V	B. Rag-picking has evolved into a complex skill that is valued within the community.	1
	VI	C. Reminiscing about past findings in the garbage.	1
10.		**Answer any five of the following six questions in 40 50 words each :** 1 -Content 1- Expression ½ -1 deducted from overall, for Accuracy	**10**
	I	An instance of hope or resilience – Saheb's continued search in the garbage, driven by the occasional discovery of a rupee or a ten-rupee note, symbolises his hope and resilience against the overwhelming odds of his harsh life. This reflects the theme of enduring hope amidst poverty and destitution - the human spirit's capacity to dream and hope, even in the terribly dire circumstances -- suggesting that the desire for a better life can exist independent of one's current state of poverty	2
	II	(Any one) ▪ The image of her aging mother - 'pale as a late winter's moon,' -- conveys the fragility and the inevitability of aging -- highlights the physical changes brought by time and evokes a sense of gentle, serene decline rather than abrupt decay ▪ The image with the vivid, lively description of young trees sprinting and merry children spilling out of their homes --- contrasts sharply with her mother's stillness and silence --- enhances the sense of her mother's isolation in her old age / the relentless passage of time that spares no one -- life's transient nature	2
	III	Represents -- the tension between local traditions and foreign occupation	2

		The church clock -- symbol of local, everyday life and continuity --- in stark opposition to the Prussian trumpets, which symbolise disruption, military power, and the enforcement of foreign rule Highlights the theme of loss and the struggle to preserve one's cultural heritage against overwhelming odds	
	IV	The author's writing style - often blends a conversational tone with introspective moments -- deeply affects the reader's engagement and understanding of the narrative. Use of direct dialogues interspersed with reflective commentary – this approach not only makes the interactions more dynamic and engaging but enhances the reader's insight into the complexities of personalities and themes being explored	2
	V	Dual – ▪ The tendency towards greed and deceit - society, driven by wealth and gain, ensnares individuals, reducing their existence to a constant struggle to escape from materialistic enticements ▪ The potential for redemption through empathy and kindness –kindness and trust by the ironmaster's daughter, Edla, inspires the peddlar to reclaim his essential humanity and escape the identity of a thief - signified by his decision to return the stolen money and leaving a note explaining his thoughts about the world being a rattrap	2
	VI	Largely due to the leadership and advocacy provided by Mahatma Gandhi -- his involvement brought national attention to their plight --highlighted the importance of civil rights and nonviolent resistance Gandhi's strategic approach to negotiations & his insistence on nonviolent protest -- empowered the peasants to stand up against oppressive landlords --- led to their immediate victory -- inspired a broader movement for social and economic justice across India	2
11.		**Answer any two of the following three questions in 40 50 words each :**	**4**
	I	The significance of the toy tiger lies in its stark contrast to the dangerous live tigers the Maharaja had been hunting throughout his life. Its role in his death brings up the themes of irony and fate central to the story. It illustrates -- despite human efforts to control or escape destiny, it can manifest in the most unexpected and trivial forms. The toy tiger symbolises -- the ultimate futility of the Maharaja's efforts -- points to the folly of those who believe they can master fate through power or violence	2
	II	The literal journey involves Charley, discovering a supposed 'third level' at the Grand Central Station--a portal to the year 1894. The metaphorical journey-- Charley's inner longing for a simpler, more reassuring past—a common human desire to retreat to a time perceived as better or less complicated. The significance - their portrayal of the universal quest for happiness and fulfillment -- together, these journeys explore themes of escapism, the subjective nature of reality, and the deep-seated human need for connection and comfort in familiar but idealised, settings.	2
	III	Derry is of the pessimistic view whereas Mr. Lamb is of the optimistic view point. Both are disabled but still view life from different perspectives.	2

	Both protagonists challenges with disfigurement are depicted with a stark realism that leans towards pessimism, yet interactions that offer genuine connection hint at underlying optimism -- suggest the possibility of emotional survival despite physical and social barriers	
12.	**Answer ANY ONE of the following two questions, in about 120-150 words**	**5**

A.

'A Roadside Stand' focuses on the economic disparities between rural and urban areas, and 'Aunt Jennifer's Tigers' delves into the gender-based inequalities within marriage and society.

A Roadside Stand	Aunt Jennifer's Tigers
• Depicts the struggles of rural individuals facing economic inequality. • Highlights the disparity between urban and rural lifestyles. • Reflects on the exploitation of rural communities by those in power. • Explores the loss of traditional ways of life due to modernisation and industrialisation.	• Illustrates the oppression faced by Aunt Jennifer within her marriage. • Reflects on the expectations and restrictions placed on women, socially. • Explores the theme of domestic suppression and its impact on women's autonomy. • Highlights the contrast between Aunt Jennifer's inner world and her external reality.

Impact on Bearers:
  ▪ A Roadside Stand -- rural folk are portrayed as struggling to make ends meet due to economic disparities, leading to feelings of frustration and helplessness.
  ▪ Aunt Jennifer's Tigers – Aunt experiences oppression and suppression within her marriage
  ▪ Both sets of bearers face the psychological and emotional toll of their respective inequalities, resulting in a longing for freedom and empowerment.
  ▪ Despite their challenges, the bearers in both poems demonstrate a desire to assert themselves through small acts of defiance or dreams of liberation.

B

While both Sophie and Subbu share aspirations for success in their respective fields, they encounter different constraints and demonstrate distinct approaches in pursuing their dreams.

Sophie	Subbu
• Aspiration: Sophie dreams of owning a boutique or becoming a fashion designer. • Constraints: Financial limitations and other expectations, such as her father's disapproval, hinder Sophie's pursuit of her dreams. • Pursuit of Dreams: Despite the challenges, Sophie remains determined to achieve her goals, showing persistence and creativity in her pursuits	• Aspiration: Subbu aims to succeed in the film industry as a poet, actor, and contributor to Gemini Studios. • Constraints: While Subbu faces challenges, such as criticism for his perceived sycophancy and overshadowing of his literary achievements by his success in films, he navigates these obstacles with grace and humility. • Pursuit of Dreams: Subbu's dedication to his craft and ability to adapt to various roles within Gemini Studios reflect his unwavering commitment to his pursuits.

13.	**Answer any one of the following two questions, in about 120-150 words**	**5**

A

- ▪ Incorporation of Traditions:
- → Religion - how religious beliefs influence character actions and decisions.

For example, Sadao's internal conflict may be influenced by his moral beliefs shaped by religious teachings.

- → Family Bonds - how relationships in the family impact character interactions and motivations.

For example, Hana's concern for the safety of her family and the potential repercussions of harbouring an enemy soldier could drive her actions.

- → Patriotism - how national loyalty and patriotism create tension and conflict in the story.

For example, Sadao's duty as a citizen and as a doctor may conflict with his compassion towards the wounded soldier, highlighting the complexities of wartime allegiances.

- ▪ Narrative Techniques:
- → Setting - how the wartime setting amplifies the moral dilemmas faced by the characters.

   The backdrop of war intensifies the stakes and adds urgency to their decisions.

- → Motivation - how cultural influences shape character motivations and drive the plot forward.

  The characters' actions may be guided by deeply ingrained cultural values and beliefs.

- → Sources of Conflict - the key conflicts stemming from cultural differences, expectations, and wartime circumstances.

These conflicts drive the narrative forward and heighten the tension.

- → Pacing - how the pacing of the story reflects the characters' internal struggles and external conflicts.

 The pacing may fluctuate to convey moments of tension, reflection, and resolution.

B.

 (Any two narrative techniques)
   [The examples may be references and not direct quotes]

a) First-Person Narrative:
- → Technique - The story is narrated from the first-person perspective of Charley, which creates an intimate and personal recounting of his experiences and thoughts.
- → Effect - This technique allows readers to directly engage with Charley's desires and fears, making his longing for escape and the nostalgia for a simpler past more tangible.
- → Textual Evidence - Charley states, "But that's the reason, he said, and my friends all agreed. Everything points to it, they claimed. My stamp collecting, for example; that's a 'temporary refuge from reality.'"

This personal reflection shares his internal justifications and how others perceive his escapism.

b) Detailed Descriptive Language:
- → Technique - The use of vivid and specific descriptions of settings and times, particularly Charley's descriptions of the third level of Grand Central Station.
- → Effect on Themes - These descriptions not only build a believable world but also vividly paint the past, stressing the theme of nostalgia and the allure of escapism to a seemingly better and simpler time.

→ Textual Evidence - "Then I saw why; they were open-flame gaslights." and "everyone in the station was dressed like eighteen-ninety-something; I never saw so many beards, sideburns, and fancy mustaches in my life."

These details highlight the historical setting Charley escapes to, filled with elements from the past.

c) Symbolism:
→ Technique - The story uses the 'third level' as a symbol, representing not just a physical place but a mental escape into another time.

→ Effect on Themes - The third level serves as a metaphor for the psychological refuge one seeks from the modern world's anxieties, underlining the theme of escapism.

→ Textual Evidence – Charley mentions, "Grand Central has been an exit, a way of escape—maybe that's how the tunnel I got into."

This line explicitly connects the physical space of the third level to the concept of escaping reality.

d) Contrast and Irony:
→ Technique - The stark contrast between Charley's mundane, modern life and his adventures on the third level introduces a layer of irony.
→ Effect on Themes - This contrast enhances the nostalgic appeal of the third level while ironically pointing out the impracticalities of such escapism.
→ Textual Evidence - "The clerk figured the fare—he glanced at my fancy hatband, but he figured the fare—and I had enough for two coach tickets, one way. But when I counted out the money and looked up, the clerk was staring at me."

This shows how out of place modern elements are in the past, highlighting the nostalgic yet challenging nature of his escape.

SAMPLE QUESTION PAPER
PHYSICS
Subject Code – 042
CLASS – XII
Academic Session 2024 – 25

Maximum Marks: 70   **Time Allowed: 3 hours**

General Instructions

(1) There are 33 questions in all. All questions are compulsory.

(2) This question paper has five sections: Section A, Section B, Section C, Section D and Section E.

(3) All the sections are compulsory.

(4) **Section A** contains **sixteen questions, twelve MCQ and four Assertion Reasoning based of 1 mark each**, **Section B** contains **five questions of two marks each**, **Section C** contains seven questions of three marks each, **Section D** contains **two case study-based questions of four marks each** and **Section E** contains **three long answer questions of five marks each**.

(5) There is no overall choice. However, an internal choice has been provided in one question in Section B, one question in Section C, one question in each CBQ in Section D and all three questions in Section E. You have to attempt only one of the choices in such questions.

(6) Use of calculators is not allowed.

(7) You may use the following values of physical constants where ever necessary

     i. $c = 3 \times 10^{8}$ m/s

    ii. $m_e = 9.1 \times 10^{-31}$ kg

   iii. $m_p = 1.7 \times 10^{-27}$ kg

    iv. $e = 1.6 \times 10^{-19}$ C

    v. $\mu_0 = 4\pi \times 10^{-7}$ T m A^{-1}

    vi. $h = 6.63 \times 10^{-34}$ J s

   vii. $\varepsilon_0 = 8.854 \times 10^{-12}$ $C^2 N^{-1} m^{-2}$

  viii.   Avogadro's number $= 6.023 \times 10^{23}$ per gram mole

Q1. A uniform electric field pointing in positive X-direction exists in a region. Let A be the origin, B be the point on the X-axis at x = +1 cm and C be the point on the Y-axis at y = +1 cm. Then the potential at points A, B and C satisfy.

(A) $V_A < V_B$ (B) $V_A > V_B$. (C) $V_A < V_C$ (D) $V_A > V_C$

Q2. A conducting wire connects two charged conducting spheres such that they attain equilibrium with respect to each other. The distance of separation between the two spheres is very large as compared to either of their radii.

The ratio of the magnitudes of the electric fields at the surfaces of the two spheres is

(A) $\frac{r_1}{r_2}$ (B) $\frac{r_2}{r_1}$ (C) $\frac{r_2{}^2}{r_1{}^2}$ (D) $\frac{r_1{}^2}{r_2{}^2}$

Q3. A long straight wire of circular cross section of radius 'a' carries a steady current I. The current is uniformly distributed across its cross section. The ratio of magnitudes of the magnetic field at a point a/2 above the surface of wire to that of a point a/2 below its surface is

(A) 4:1 (B) 1:1 (C) 4: 3 (D) 3 :4

Q4. The diffraction effect can be observed in

(A) sound waves only (B) light waves only

(C) ultrasonic waves only (D) sound waves as well as light waves

Q5. A capacitor consists of two parallel plates, with an area of cross-section of 0.001 m², separated by a distance of 0.0001 m. If the voltage across the plates varies at the rate of 10^8 V/s, then the value of displacement current through the capacitor is

(A) $8.85 \times 10^{-3} A$ (B) $8.85 \times 10^{-4} A$ (C) $7.85 \times 10^{-3} A$ (D) $9.85 \times 10^{-3} A$

Q6. In a series LCR circuit, the voltage across the resistance, capacitance and inductance is 10 V each. If the capacitance is short circuited the voltage across the inductance will be

(A) 10 V (B) $10\sqrt{2}$ V (C) $10/\sqrt{2}$ V (D) 20 V

Q7. Correct match of column I with column II is

C-l (waves)	C-ll (Production)
(1) Infra-red	P . Rapid vibration of electrons in aerials
(2) Radio	Q . Electrons in atoms emit light when they move from higher to lower energy level.
(3) Light	R . Klystron valve
(4) Microwave	S . Vibration of atoms and molecules

(A) 1-P, 2-R, 3-S, 4-Q   (B) 1-S, 2-P, 3-O, 4-R

(C) 1-Q, 2-P, 3-S, 4-R   (D) 1-S. 2-R, 3-P, 4-Q

Q8. The distance of closest approach of an alpha particle is d when it moves with a speed V towards a nucleus.

Another alpha particle is projected with higher energy such that the new distance of the closest approach is $d/2$. What is the speed of projection of the alpha particle in this case?

(A) V /2   (B) $\sqrt{2}$ V   (C) 2 V   (D) 4 V

Q9. A point object is placed at the centre of a glass sphere of radius 6 cm and refractive index 1.5. The distance of virtual image from the surface of the sphere is

(A) 2 cm   (B) 4 cm   (C) 6 cm   (D) 12 cm

Q10. Colours observed on a CD (Compact Disk) is due to

(A) Reflection   (B) Diffraction   (C) Dispersion   (D) Absorption

Q11. The number of electrons made available for conduction by dopant atoms depends strongly upon

(A) doping level   (B) increase in ambient temperature

(C) energy gap   (D) options (a) and (b) both

Q12. If copper wire is stretched to make its radius decrease by 0.1%, then the percentage change in its resistance is approximately

(A) –0.4%   (B) +0.8%   (C) +0.4%   (D) +0.2%

For Questions 13 to 16, two statements are given –one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to these questions from the options as given below.

   A.   If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

   B.   If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

   C. If Assertion is true but Reason is false.

   D. If both Assertion and Reason are false.

Q13. Assertion (A): On increasing the current sensitivity of a galvanometer by increasing the number of turns may not necessarily increase its voltage sensitivity.

    Reason(R) : The resistance of the coil of the galvanometer increases on increasing the number of turns.

Q14.   Assertion (A): In a hydrogen atom there is only one electron but its emission spectrum shows many lines.

    Reason (R): In a given sample of hydrogen there are many atoms each containing one electron; hence many electrons in different atoms may be in different orbits so many transitions from higher to lower orbits are possible.

Q15. Assertion (A): Nuclei having mass number about 60 are least stable**.**.

    Reason (R): When two or more light nuclei are combined into a heavier nucleus then the binding energy per nucleon will decrease.

Q16. Assertion (A): de Broglie's wavelength of a freely falling body keeps decreasing with time.

    Reason (R): The momentum of the freely falling body increases with time.

<div align="center">

[SECTION – B]   **(05x2=10 marks)**

</div>

Q17. A platinum surface having work function 5.63 eV is illuminated by a monochromatic source of 1.6×10^{15} Hz. What will be the minimum wavelength associated with the ejected electron.

Q18. (I) In Young's double-slit experiment using monochromatic light of wavelength λ, the intensities of two sources is I. What is the intensity of light at a point where path difference between wave front is $\lambda/4$?

OR

(II) A beam of light consisting of two wavelengths, 4000 Å and 6000 Å, is used to obtain interference fringes in a Young's double-slit experiment. What is the least distance from the central maximum where the dark fringe is obtained?

Q19. P and Q are two identical charged particles each of mass 4×10^{-26} kg and charge 4.8×10^{-19} C, each moving with the same speed of 2.4×10^5 m/s as shown in the figure. The two particles are equidistant (0.5 m) from the vertical Y -axis. At some instant, a magnetic field B is switched on so that the two particles undergo head-on collision.
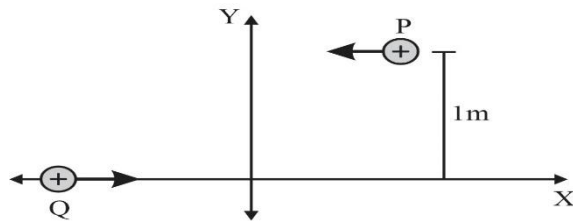
Find –

(I) the direction of the magnetic field and

(II) the magnitude of the magnetic field applied in the region.

(for VI candidates)

A proton is moving with speed of 2×10^5 m s^{-1} enters a uniform magnetic field B = 1.5 T. At the entry velocity vector makes an angle of 30° to the direction of the magnetic field. Calculate

(a) the pitch of helical path described by the charge

(b) Kinetic energy after completing half of the circle.

Q.20. Binding energy per nucleon vs mass number curve for nuclei is shown in the figure. W, X, Y and Z are four nuclei indicated on the curve. Identify which of the following nuclei is most likely to undergo

(i) Nuclear Fission

(ii) Nuclear Fusion.

Justify your answer.
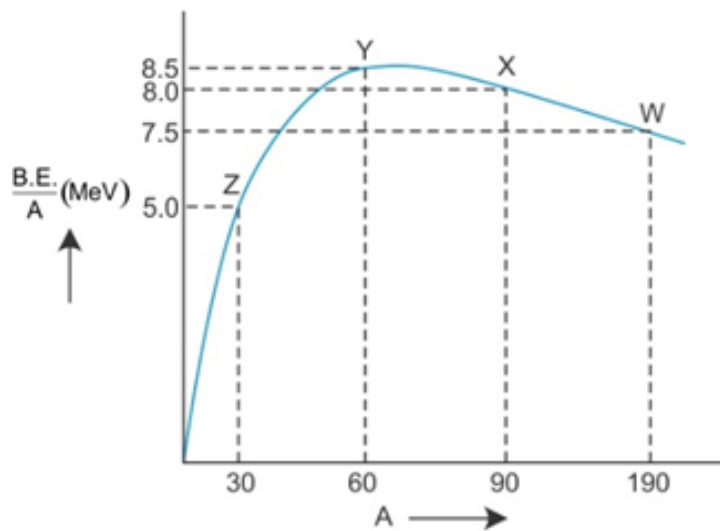
(for V.I. Candidates)

Binding energy per nucleon and mass number of the following nuclei are given in the below table

Nuclei	Binding energy per nucleon (MeV)	Mass number
W	7.5	190
X	8.0	90
Y	8.5	60
Z	5.0	30

Identify which of the following nuclei is most likely to undergo

(i) Nuclear Fission

(ii) Nuclear Fusion.

Justify your answer.

Q21. What should be the radius 'r' of nearest possible orbits of satellite of mass 'm' revolving around the planet of mass 'M' as per Bohr Postulates in terms of m, M, G, h where G is Gravitational constant and h is plank's constant.

[SECTION – C]   **(07x3=21 marks)**

Q22. (I) Identify the circuit elements X and Y as shown in the given block diagram and draw the output waveforms of X and Y.
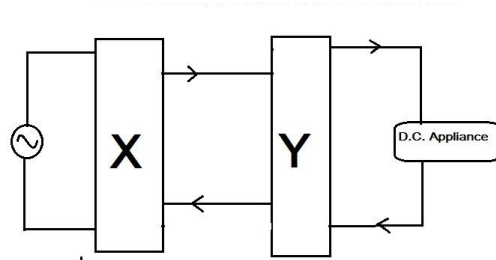
(II) If the centre tapping is shifted towards Diode D1 as shown in the diagram, draw the output waveform of the given circuit.
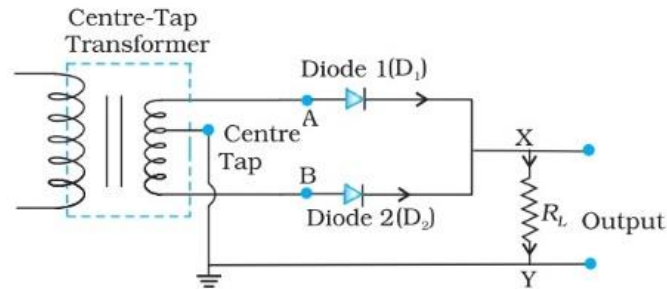
(for V.I. candidates)

Which device is used to convert AC into DC. State it's underlying principle and explain its working. If the frequency of input AC to this device is 60 Hz, then what will be frequency of the output of this device.

Q23. Find the expression for the capacitance of a parallel plate capacitor of plate area A and plate separation d when (I) a dielectric slab of thickness t and (II) a metallic slab of thickness t, where (t < d) are introduced one by one between the plates of the capacitor. In which case would the capacitance be more and why?

Q24. (I) Draw a ray diagram for the formation of image by a Cassegrain telescope.

(II) Why these types of telescopes are preferred over refracting type telescopes. (Write 2 points)

(for V.I. Candidates)

A Cassegrain telescope is built with an arrangement of two mirrors placing them 20 mm apart. If the radius of curvature of the large mirror is 200mm and the small mirror is 150mm, where will the final image of an object at infinity be?

Q25. (I) Draw the energy band diagram for P-type semiconductor at (i) T=0K and (ii) room temperature.

(II)In the given diagram considering an ideal diode, in which condition will the bulb glow

    (a) when the switch is open

    (b) when the switch is closed

Justify your answer.
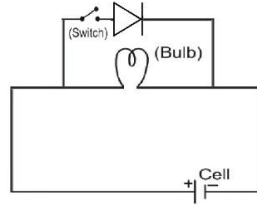
(for V.I. Candidates)

Explain briefly how

    (i)   barrier potential is formed in p-n junction diode.

    (ii) Width of depletion region of the diode is affected when it is (a) forward biased, (b) reverse biased.

Q26. A boy is holding a smooth, hollow and non-conducting pipe vertically with charged spherical ball of mass 10 g carrying a charge of +10 mC inside it which is free to move along the axis of the pipe. The boy is moving the pipe from East to West direction in the presence of magnetic field of 2T. With what minimum velocity, should the boy move the pipe such that the ball does not move along the axis. Also determine the direction of the magnetic field.

Q27. A light ray entering a right-angled prism undergoes refraction at the face AC as shown in Fig. 1.

    (I) What is the refractive index of the material of the prism in Fig. 1?

Fig. 1
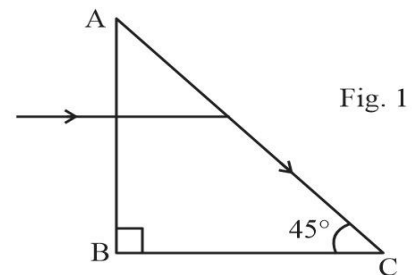
    (II) (a) If the side AC of the above prism is now surrounded by a liquid of refractive index $\dfrac{2}{\sqrt{3}}$, as shown in Fig. 2, determine if the light ray continues to graze along the interface AC or undergoes total internal reflection or undergoes refraction into the liquid.
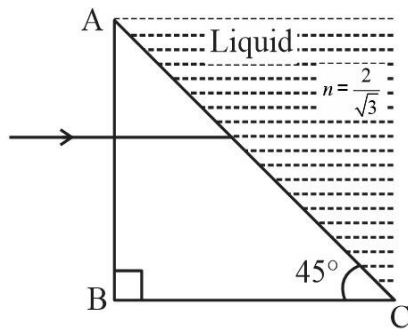
Fig. 2

(b) Draw the ray diagram to represent the path followed by the incident ray with the corresponding angle values.

(Given, $sin^{-1}(\frac{\sqrt{2}}{\sqrt{3}}) = 54.6^{\circ}$)

(for V.I. candidates)

A ray of light is incident on an equilateral prism at an angle 3/4 th of the angle of the prism. If the ray passes symmetrically through the prism, find the (a) angle of minimum deviation, and (b) refractive index of the material of the prism.

Q28. (I)   State Gauss's theorem in electrostatics. Using this theorem, derive an expression for the electric field due to an infinitely long straight wire of linear charge density λ.

OR

(II)   (a) Define electric flux and write its SI unit.

(b) Use Gauss's law to obtain the expression for the electric field due to a uniformly charged infinite plane sheet of charge.

[SECTION D]   (02x4=08 marks)

Q29. Case Study Based Question: <u>**Motion of Charge in Magnetic Field**</u>

An electron with speed $v_o \ll c$ moves in a circle of radius r_o in a uniform magnetic field. This electron is able to traverse a circular path as the magnetic force acting on the electron is perpendicular to both v_o and B ,as shown in the figure. This force continuously deflects the particle sideways without changing its speed and the particle will move along a circle perpendicular to the field. The time required for one revolution of the electron is T_o
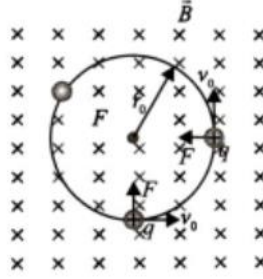
(i) If the speed of the electron is now doubled to $2v_o$. The radius of the circle will change to

(A) $4r_o$ (B) $2 r_o$ (C) r_o (D) $r_o/2$

(ii) If $v = 2v_o$, then the time required for one revolution of the electron (T_o) will change to

(A) $4 T_o$ (B) $2 T_o$ (C) T_o (D) $T_o/2$

(iii) A charged particles is projected in a magnetic field . The acceleration of the particle is found to be . Find the value of x.

(A) 4 ms^{-2} (B) -4 ms^{-2} (C) -2 ms^{-2} (D) 2 ms^{-2}

(iv) If the given electron has a velocity not perpendicular to B, then trajectory of the electron is

(A) straight line   (B) circular   (C) helical   (D) zig-zag

OR

If this electron of charge (e) is moving parallel to uniform magnetic field with constant velocity v, the force acting on the electron is

(A) Bev   (B) Be/v   (C) B/ev   (D) Zero

Q30. Case Study Based Question: Photoelectric effect

It is the phenomenon of emission of electrons from a metallic surface when light of a suitable frequency is incident on it. The emitted electrons are called photoelectrons.

Nearly all metals exhibit this effect with ultraviolet light but alkali metals like lithium, sodium, potassium, cesium etc. show this effect even with visible light. It is an instantaneous process i.e. photoelectrons are emitted as soon as the light is incident on the metal surface. The number of photoelectrons emitted per second is directly proportional to the intensity of the incident radiation.

The maximum kinetic energy of the photoelectrons emitted from a given metal surface is independent of the intensity of the incident light and depends only on the frequency of the incident light. For a given metal surface there is a certain minimum value of the frequency of the incident light below which emission of photoelectrons does not occur.

(I) In a photoelectric experiment plate current is plotted against anode potential.
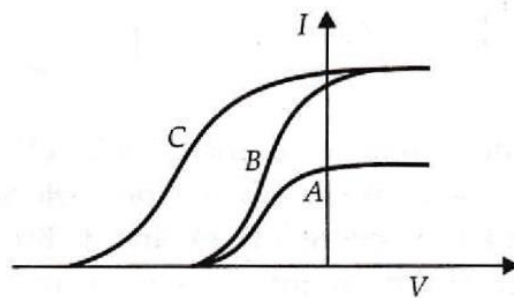
   (A) A and B will have same intensities while B and C will have different frequencies
   (B) B and C will have different intensities while A and B will have different frequencies
   (C) A and B will have different intensities while B and C will have equal frequencies
   (D) B and C will have equal intensities while A and B will have same frequencies.

(II) Photoelectrons are emitted when a zinc plate is

   (A) Heated   (B) hammered
   (C) Irradiated by ultraviolet light   (D) subjected to a high pressure

(III) The threshold frequency for photoelectric effect on sodium corresponds to a wavelength of 500 nm. Its work function is about

   (A) 4×10^{-19} J   (B) 1 J   (C) 2×10^{-19} J   (D) 3×10^{-19} J

(IV) The maximum kinetic energy of photoelectrons emitted from a surface when photons of energy 6 eV fall on it is 4 eV. The stopping potential is

   (A) 2 V   (B) 4 V   (C) 6 V   (D) 10 V

OR

The minimum energy required to remove an electron from a substance is called its

   (A) work function   (B) kinetic energy   (C) stopping potential (D) potential energy

Q31. (I) a) Write two limitations of ohm's law. Plot their I-V characteristics.

b) A heating element connected across a battery of 100 V having an internal resistance of 1 Ω draws an initial current of 10 A at room temperature 20.0 °C which settles after a few seconds to a steady value. What is the power consumed by battery itself after the steady temperature of 320.0 °C is attained? Temperature coefficient of resistance averaged over the temperature range involved is 3.70×10^{-4} °C^{-1}.

OR

(II) a) Using Kirchhoff's laws obtain the equation of the balanced state in Wheatstone bridge.

b) A wire of uniform cross-section and resistance of 12 ohm is bent in the shape of circle as shown in the figure. A resistance of 10 ohms is connected to diametrically opposite ends C and D. A battery of emf 8V is connected between A and B. Determine the current flowing through arm AD.
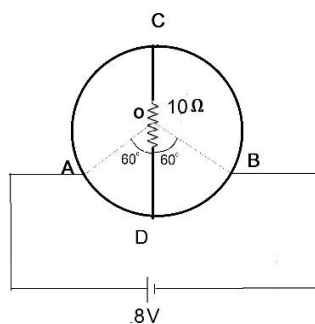
(for V.I. Candidates)

(II) a) Using Kirchhoff's laws obtain the equation of the balanced state in Wheatstone bridge.

b) What do you understand by 'sensitivity of Wheatstone bridge' ? How the sensitivity of wheatstone bridge can be increased?

Q32. (I) Explain briefly, with the help of a labelled diagram, the basic principle of the working of an a.c. generator. In an a.c. generator, coil of N turns and area A is rotated at an angular velocity ω in a

uniform magnetic field B. Derive an expression for the instantaneous value of the emf induced in coil. What is the source of energy generation in this device?

OR

(II) a) With the help of a diagram, explain the principle of a device which changes a low ac voltage into a high voltage . Deduce the expression for the ratio of secondary voltage to the primary voltage in terms of the ratio of the number of turns of primary and secondary winding. For an ideal transformer, obtain the ratio of primary and secondary currents in terms of the ratio of the voltages in the secondary and primary coils.

  b) Write any two sources of the energy losses which occur in actual transformers.

  c) A step-up transformer converts a low input voltage into a high output voltage. Does it violate law of conservation of energy? Explain.

Q33. (I) a) A giant refracting telescope at an observatory has an objective lens of focal length 15 m. If an eyepiece of focal length 1.0 cm is used, what is angular magnification of the telescope in normal adjustment?

  b) If this telescope is used to view the moon, what is the diameter of the image of the moon formed by the objective lens? The diameter of the moon is 3.48×10^6 m, and the radius of lunar orbit is 3.8×10^8 m.

OR

(II) A compound microscope consists of an objective lens of focal length 2.0 cm and an eyepiece of focal length 6.25 cm separated by a distance of 15 cm. How far from the objective should an object be placed in order to obtain the final image at

  a) the least distance of distinct vision (25 cm) and
  b) infinity? What is the magnifying power of the microscope in each case?

MARKING SCHEME
PHYSICS
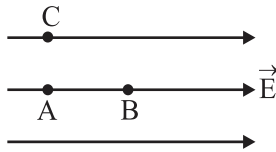## Subject Code – 042
CLASS – XII
Academic Session 2024 – 25

Maximum Marks: 70   **Time Allowed: 3 hours**

[SECTION – A]

Ans.1 - (B)   **(1 mark)**

$V_A > V_B$ $[V_A = V_C]$

In the direction of electric field, the electric potential decreases.
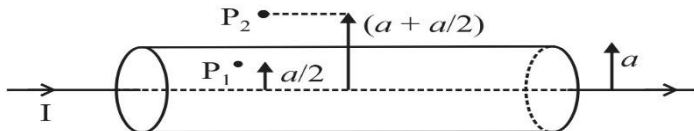
Ans.2 - (B) In the state of equilibrium,   **(1 mark)**

The potential on the surface of bigger sphere = the potential at the surface of the   smaller sphere

$$\frac{kq_1}{r_1} = \frac{kq_2}{r_2} \implies \frac{q_1}{q_2} = \frac{r_1}{r_2}$$

$$\therefore \quad \frac{E_1}{E_2} = \frac{q_1}{q_2}\frac{r_2^2}{r_1^2} = \frac{r_1}{r_2}\cdot\frac{r_2^2}{r_1^2} = \frac{r_2}{r_1}$$

Ans.3 - (C)   **(1 mark)**

At P_2, $B_2 = \dfrac{\mu_0 I}{2\pi\left(\dfrac{3a}{2}\right)} = \dfrac{\mu_0 I}{3\pi a}$

At P_1, $B_1 = \dfrac{\mu_0(I/4)}{2\pi(a/2)} = \dfrac{\mu_0 I}{4\pi a}$

$$\therefore \quad \frac{B_2}{B_1} = \frac{\left(\dfrac{\mu_0 I}{3\pi a}\right)}{\left(\dfrac{\mu_0 I}{4\pi a}\right)} \implies \frac{B_2}{B_1} = \frac{4}{3}$$

Ans.4 - (D) Sound waves as well as light waves   (1 mark)

Ans.5 - (A)   (1 mark)

Ans.6 - (C) When all the given components are connected   (1 mark)

$IR = IX_C = IX_L = 10$ V

$X_C = X_L = R$

$Z = \sqrt{R^2 + (X_C - X_L)^2}$

$Z = \sqrt{R^2 + (R - R)^2}$

$Z = R$

$V_S = IZ = IR = 10$ V

So, the source voltage is also 10 V

When the capacitor is short circuited then

$Z = \sqrt{R^2 + (X_L)^2}$

$= \sqrt{R^2 + R^2} = R\sqrt{2}$

$V_L = I' X_L = \dfrac{10}{\sqrt{2}R} \times R = 5\sqrt{2}$ V

Ans.7 - (B) (1 mark)

Ans.8 - (B) The distance of closest approach (1 mark)

$$d = \frac{const}{V_1^2} \quad \text{...(1)}$$

$$\frac{d}{2} = \frac{const}{V_2^2} \quad \text{...(2)}$$

From equations (1) and (2),

$$2 = \frac{V_2^2}{V_1^2} \implies V_2 = \sqrt{2}\, V_1$$

$\therefore \quad V_2 = \sqrt{2}$ V   Given, $(V_1 = V)$

Ans.9 - (C) (1 mark)

$u = 6$ cm
$R = 6$ cm
$v = ?$
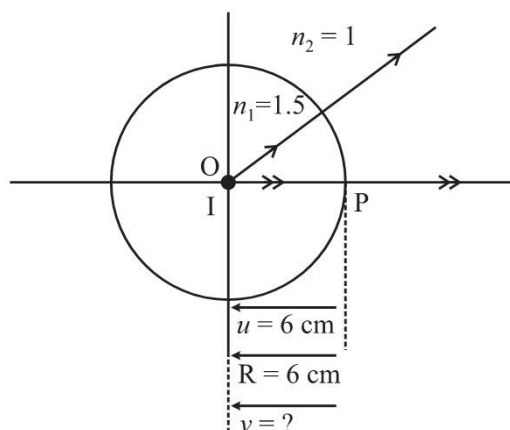
$$\frac{n_2}{v} - \frac{n_1}{u} = \frac{n_2 - n_1}{R}$$

$$\frac{1}{v} - \frac{3}{2[-6]} = \frac{[1 - 3/2]}{-6}$$

$$\frac{1}{v} = \frac{-3}{12} + \frac{1}{12} = \frac{-2}{12} = \frac{-1}{6}$$

$v = -6$ cm

Ans.10 - (B) Diffraction   (1 mark)

Ans.11 - (A) doping level   (1 mark)

Ans.12 - (C) +0.4%   (1 mark)

Ans.13 - (A)   (1 mark)

Ans.14 - (A)   (1 mark)

Ans.15 - (D)   (1 mark)

Ans.16 - (A)   (1 mark)

[SECTION – B]

Ans.17 –

Given $\emptyset_0 = 5.63eV = 5.63 \times 1.6 \times 10^{-19}J$

$$\nu = 1.6 \times 10^{15}Hz$$

$$K.E. = h\nu - \emptyset_0 = \frac{hc}{\lambda} \qquad\qquad ½$$

$$\lambda = \frac{hc}{h\nu - \emptyset_0} \qquad\qquad ½$$

$$= \frac{6.63 \times 10^{-34} \times 3 \times 10^8}{6.63 \times 10^{-34} \times 1.6 \times 10^{15} - 5.63 \times 1.6 \times 10^{-19}} \qquad\qquad ½$$

$$= \frac{19.89 \times 10^{-26}}{1.6 \times 10^{-19}(6.63 - 5.63)}$$

$$= \frac{19.89 \times 10^{-26}}{1.6 \times 10^{15}} = 12.4 \times 10^{-7} \, m \qquad\qquad ½$$

Ans.18 - $\lambda_1 = 4 \times 10^{-7} \, m \qquad \lambda_2 = 6 \times 10^{-7} \, m$

Distance at which dark fringe is observed $\quad x = \left(n + \frac{1}{2}\right)\frac{\lambda D}{d} \qquad\qquad ½$

First Dark fringe for $\lambda_1 d_1 = \frac{1}{2} \frac{4 \times 10^{-7}}{10^{-2}} \, m = 2 \times 10^{-5} \, m \qquad\qquad ½$

First Dark fringe for $\lambda_2 d_2 = \frac{1}{2}\ \frac{6\times10^{-7}}{10^{-2}}\ m = 3\ \times\ 10^{-5}\ m$

First dark fringe will be the distance where both dark fringes will coincide i.e LCM of d_1 & d_1 ½

i.e. $2\ \times\ 10^{-5}\ m\ \times\ 3\ \times\ 10^{-5}\ m$

$$= 6\ \times\ 10^{-5}\ m \hspace{6cm} \text{½}$$

<p align="center">OR</p>

(II)   For a fringe of width β formed on the screen at distance D from the slits the angular fringe width would be

$\theta = \frac{\beta}{D} = \frac{D\lambda/d}{D} = \frac{\lambda}{d}$ **0.5 M**

or $d = \frac{\lambda}{\theta}$

Let the wavelength in water be λ' and the angular fringe width be θ' , then

$d = \frac{\lambda'}{\theta'}$ $\therefore\ \frac{\lambda}{\theta} = \frac{\lambda'}{\theta'}$ **0.5 M**

or $\theta' = \frac{\lambda'}{\lambda}\theta = \frac{\lambda/\mu}{\lambda}\theta = \frac{\theta}{\mu} = \frac{0.2^o}{4/3} = 0.15^o$ **1 M**

<div align="right">(2 Marks)</div>

Ans.19 - (I) The direction of the magnetic field is perpendicular and inward into the plane of the   paper   **0.5M**
         (II) For a head-on collision to take place, the radius of the path of each ion should be equal to 0.5 m.

$r = \dfrac{mv}{qB} = 0.5$ m   **0.5M**

$B = \dfrac{mv}{qr} = \dfrac{4\times10^{-26}\times2.4\times10^5}{4.8\times10^{-19}\times0.5}$ **0.5M**

B = 0.04 T   **0.5M**

    For VI Candidate

    (a) As Pitch (p)=$\dfrac{2\Pi mv\ cos\theta}{qB}$ **0.5M**

      Or, p=$\dfrac{2\ X\ 3.14\ X\ 1.7 X10^{-27}X\ 2\ X10^5\ Cos\ 30^0}{1.6\ X10^{-19}X1.5}$m

      Or, P=7.7X10^{-3}m   **0.5M**

    (b)As, done by magnetic field is always zero K.E=1/2mv^2   **0.5M**

      KE=3.4 X 10^{-17}J   **0.5M**

Ans.20 – (i) Nuclear fission –W   0.5M

    Reason: As W has binding energy per nucleon less then Y and X and nucleus is larger

    in size.   0.5M

    (ii) Nuclear fusion-Z   0.5M

    Reason: As Z has binding energy per nucleon more then Y and X and nucleus is smaller

    in size.   **0.5M**

Ans. 21 - $\frac{nh}{2\Pi}$ = mvr   (As Per Bohr's Modal)   ….(i)   0.5M

As Centripetal force is provided by gravity,

$$\frac{mv^2}{r}=\frac{GMm}{r^2}$$ 0.5M

Or, $V^2=\dfrac{GM}{r}$

From equation (i)

$V=\dfrac{nh}{2\pi mr}$

Or, $V^2=\left\{\dfrac{nh}{2\pi mr}\right\}^2$ 0.5M

or, $\dfrac{GM}{r}=\left\{\dfrac{nh}{2\pi mr}\right\}^2$

or, $r=\dfrac{n^2h^2}{4\pi^2m^2GM}$ 0.5M

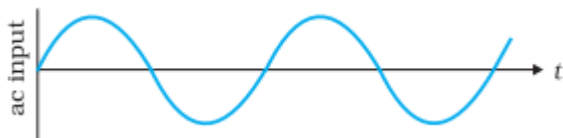## [SECTION – C]

(3 Marks)

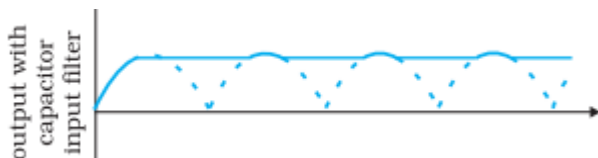**Ans.22 -** (I) X = Full wave rectifier   ½
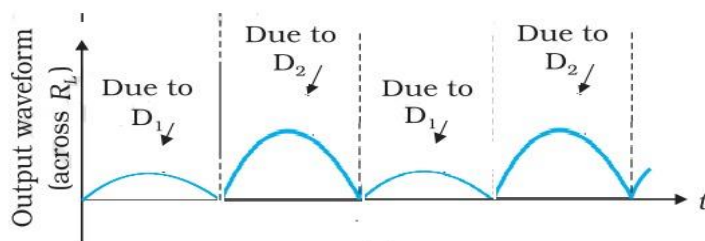
Y = Filter   ½

(Output Waveform for X)   ½

(Output Waveform for Y)   ½

(ii)   1

Rectifier   0.5M

Underlying principle of Rectifier
The basic principle of the rectifiers is the transformation of current by changing the frequency of the input signal, and diodes are used to do this.   0.5M

Working
In rectifier, one end of terminal which is connected to PN junction diode will never have negative potential, as it allows current in forward biasing only. Hence potential difference across load resistor will always be Positive or zero.   1M

For 60 Hz input of AC, output of
Half wave rectifier will be 60Hz   0.5M
Full wave rectifier will be 120 Hz   0.5M

Ans.23 - (I) The capacitance of a parallel plate capacitor with dielectric slab (t < d)

                                                                              (3 Marks)
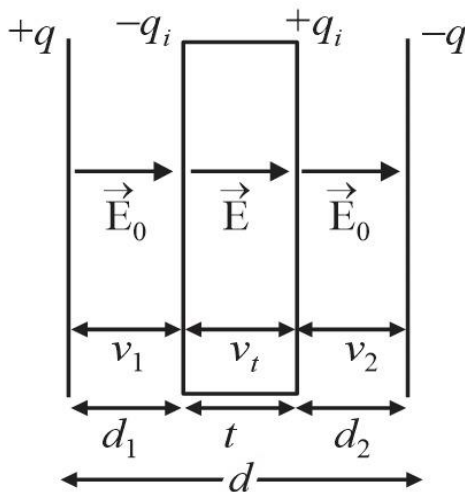
                                                                              0.5M

$+q$, $-q$ = the charges on the capacitor plates

$+q_i$, $-q_i$ = Induced charges on the faces of the dielectric slab

E_0 → electric field intensity in air between the plates

E → the reduced value of electric field intensity inside the dielectric slab.

When a dielectric slab of thickness $t < d$ is introduced between the two plates of the capacitor the electric field reduces to E due to the polarisation of the dielectric. The potential difference between the two plates is given by

$V = V_1 + V_t + V_2$

$V = E_0 d_1 + Et + E_0 d_2$ … (1)   **0.5M**

Here E is the reduced value of electric field intensity

$\vec{E} = \vec{E_0} + \vec{E_i}$. Here $\vec{E_i}$ is the electric field due to the induced charges [$+q_i$ and $-q_i$]

$E = \sqrt{E_0^2 + E_i^2 + 2E_0 E_i \cos 180°}$

$$= \sqrt{(E_0 - E_i)^2}$$

$E = E_0 - E_i$ **0.5M**

Also the dielectric constant K is given by

$$K = \frac{E_0}{E} \qquad \qquad \text{... (2)}$$

$$E_0 = \frac{\sigma}{\varepsilon_0} = \frac{q}{A\varepsilon_0} \qquad \qquad \text{... (3)}$$

From equations (1), (2) and (3)

$$V = E_0[d_1 + d_2] + \frac{E_0}{K}t$$

$$V = \frac{q}{A\varepsilon_0}\left[d - t + \frac{t}{K}\right] \qquad \qquad \text{... (4)}$$

The capacitance of the capacitor on the introduction of the dielectric slab is

$$C = \frac{q}{V} \qquad \qquad \text{... (5)}$$

From (4) and (5)

$$C = \frac{\varepsilon_0 A}{d - t + \frac{t}{K}} \qquad \qquad \textbf{0.5M}$$

If $t = d$, then $C = K\frac{\varepsilon_0 A}{d} \Rightarrow$ C = KC$_0$ Here $C_0 = \frac{\varepsilon_0 A}{d}$

Since K > 1 therefore C > C$_0$

(II) For a metallic slab K is infinitely large, therefore $C = \frac{\varepsilon_0 A}{d - t}$ **1M**

(3 Marks)

Ans.24 - (i)

2
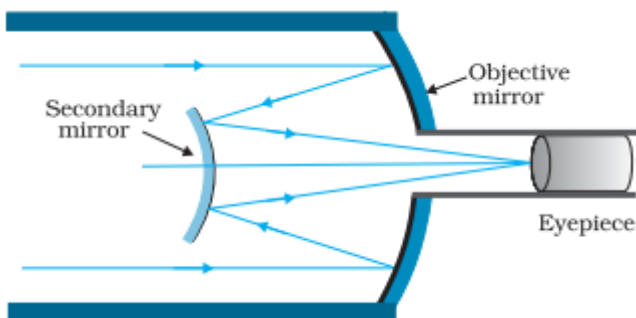
(ii)   1
- It has mirror objective, which is free from chromatic and spherical aberrations.
- It can gather more light as objectives can be made larger, hence images can be brighter.
Any other two equivalent examples can be accepted.

For V.I Candidates
    Objective mirror,
        Radius of curvature, R$_1$=200mm
        Focal Length, f$_1$=R$_1$/2=100mm **0.5M**
    Secondary Mirror,

Radius of curvature, $R_1=150mm$

Focal Length, $f_1=R_1/2=75mm$ **0.5M**

Distance between two mirror, x=20mm

For object at infinity, image is formed by objective lens will act as virtual object for secondary mirror

$U_2 =(100-20)mm=80mm$ **0.5M**

Applying, mirror formula for secondary mirror

$$\frac{1}{v_2} + \frac{1}{u_2} = \frac{1}{f_2}$$ **0.5M**

Or, $\dfrac{1}{v_2} = \dfrac{1}{f_2} - \dfrac{1}{u_2}$

$$= \frac{1}{75} - \frac{1}{80} = \frac{1}{1200}$$ **0.5M**

$V_{2=1200mm}$ **0.5M**

Ans.25 -

(a).
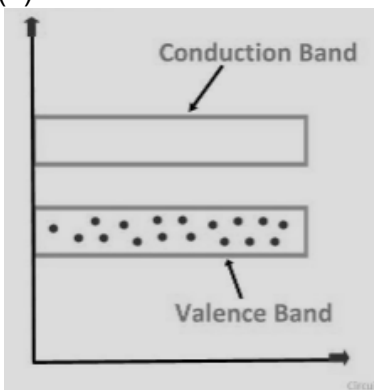
         1M

(b) T = 0 K
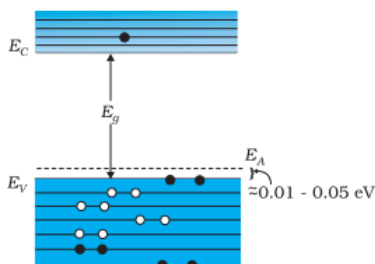
         1M

(ii)   Answer will be (a) when switch is open   **0.5M**

as when switch is closed diode will be forward biased and current will by-pass the bulb.   **0.5M**

For V.I. Candidate

(i) A potential barrier is formed in a p-n junction due to the depletion layer, which is a layer of unmovable positive and negative charges that develops on either side of the junction. The depletion layer is created

when holes move towards electrons, causing a layer of electrons on the p-type side and a layer of holes on the n-type side. The potential difference across this region is called the barrier potential $\qquad$ **2M**

(ii)(a) **In forward biasing width of depletion region decreases.** $\qquad$ **0.5M**

(b) **In reverse biasing width of depletion region increases.** $\qquad$ **0.5M**

Ans.26 - $\hfill$ **(3 Marks)**

Given

$B = 2\,T$, $q = 10mC$, $mass\ of\ the\ ball = 10^{-2}kg$, $g = 9.8\ ^m/_{S^2}$

Magnetic force $(qvB \sin\theta) = gravitational\ force\ (mg)$

$$v = \frac{mg}{qB \sin\theta}$$ $\hfill$ ½

For min. velocity $\sin\theta = 1$

$$v = \frac{mg}{qB \sin\theta} = v = \frac{mg}{qB}$$ $\hfill$ ½

$$= \frac{10^{-2} \times 9.8}{10^{-2} \times 2}\ \text{m/s}$$ $\hfill$ ½

=4.9m/s

$$v = 4.9\ ^m/_{S^2}$$ $\hfill$ ½

As force is in upward direction so from Fleming's Left-hand rule, magnetic field will be along North to South.
1

$\hfill$ **(3 Marks)**

Ans.27 - (I) Since the light ray enters perpendicular to the face AB, the angle of incidence on face AC will be 45°. **0.5M**

So,

$$\sin\theta_C = \frac{1}{n}$$

$sin\,45^\circ = \frac{1}{n} = \frac{1}{\sqrt{2}}$ So, $n = \sqrt{2}$ $\hfill$ **0.5M**

(II) In fig. 2, the face AC of the prism is surrounded by a liquid so $n = \dfrac{n_g}{n_l} = \dfrac{\sqrt{2}}{\left(\frac{2}{\sqrt{3}}\right)} = \dfrac{\sqrt{3}}{\sqrt{2}}$

$$\sin\theta_C = \frac{1}{n} = \frac{\sqrt{2}}{\sqrt{3}} \qquad \theta_C = sin^{-1}(\tfrac{\sqrt{2}}{\sqrt{3}}) = 54.6^\circ$$

Since the angle of incidence on the surface AC is $45°$, which is less than the critical angle for the pair of media (glass and the liquid), the ray neither undergoes grazing along surface AC, nor does it suffer total internal reflection   **1M**

Instead it passes through the surface AC and undergoes refraction into the liquid.

For refracting interface AC, $n_1 \sin i = n_2 \sin r$

$$n_1 . \sin 45° = \left(\frac{2}{\sqrt{3}}\right) \sin r$$

$$\sin r = \frac{\sqrt{3}}{2} \qquad \therefore r = 60°.$$
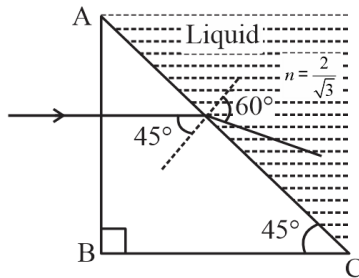
1M

(3 Marks)

For V.I. candidates
(a) Let the angle of incidence of light at prism, I = x
So, angle of emergence as per question, e = x
Angle of prism, A = $\frac{4}{3}x$ **0.5M**
Since prism Is equilateral
$3A=180^0$ **0.5M**
Or, A= 60^0
Or, X=45^0
From prism formulae δ
δ= i+e-A   **0.5M**
or, δ=45+45-60=30^0 **0.5M**

(b) $\mu = \dfrac{\sin\frac{A+\delta m}{2}}{\sin\frac{A}{2}}$ **0.5M**

Or, $\mu=\dfrac{\sin\frac{60+30}{2}}{\sin\frac{60}{2}}$

Or, $\mu=\sqrt{2}$ **0.5M**

Ans.28 – (I) Gauss's theorem: The flux of electric field through any closed surface is $\dfrac{1}{\varepsilon_0}$ times the total charge enclosed by the closed surface.

$$\phi = \frac{q}{\varepsilon_0} \qquad \qquad \text{… (1)}$$

By definition, the total electric flux through the closed surface is given by

$$\phi = \oint \vec{E}.\overrightarrow{ds} \qquad \qquad \text{… (2)}$$

∴ From (1) and (2), Gauss's theorem may be expressed as follows
$$\phi = \oint \vec{E}.\overrightarrow{ds} = \frac{q}{\varepsilon_0}$$

∴ The surface integral of electric field over a closed surface is equal to $\dfrac{1}{\varepsilon_0}$ times the total charge enclosed by the surface. **1M**

Application of Gauss's theorem

To find electric field due to a line charge let us consider an infinitely long line charge placed along XX' axis with linear charge density λ. Our aim is to find electric field intensity at a point P distant *r* from the line charge. We draw a cylindrical surface of radius *r* and length *l* coaxial with the line charge. The net flux through the cylindrical gaussian surface i.e.
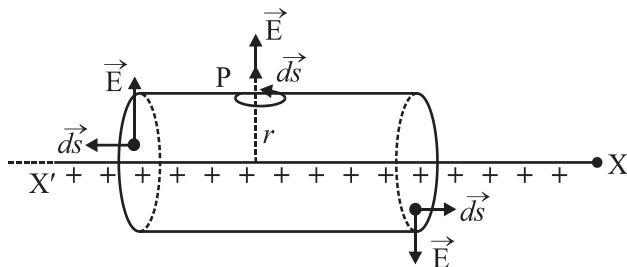
0.5M

$\phi = \oint \vec{E}.\overrightarrow{ds} = \int_{LCF} \vec{E}.\overrightarrow{ds} + \int_{CS} \vec{E}.\overrightarrow{ds} + \int_{RCF} \vec{E}.\overrightarrow{ds}$ **0.5M**

$= \int_{LCF} Eds\cos 90° + \int_{CS} Eds\cos 0° + \int_{RCF} Eds\cos 90°$ **0.5M**

$\phi = \int_{CS} Eds\cos 0° = E.2\pi rl$ …   (1)

The charge enclosed by the gaussian surface is $q = \lambda l$ … (2)

Using Gauss's theorem from equations (1) and (2)

$E(2\pi rl) = \dfrac{\lambda l}{\varepsilon_0} \Rightarrow E = \dfrac{\lambda}{2\pi \varepsilon_0 r}$ **0.5M**
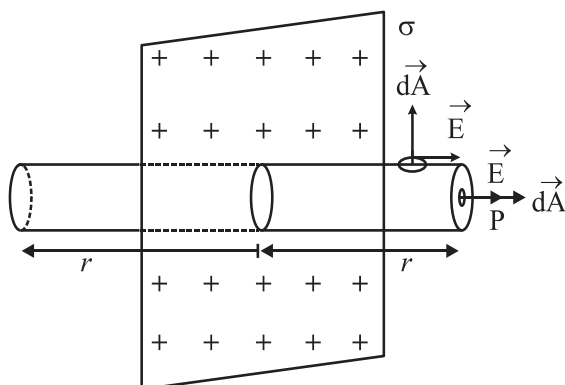
OR

(II) (a) Definition of electric flux and its SI unit   **1M**

   (b) Electric field due to an infinite plane sheet of charge.

    Let us consider an infinite thin plane sheet of positive charge having a uniform surface charge density σ. Let P be the point where electric field E is to be found. Let us imagine a cylindrical gaussian surface of length 2*r* and containing P as shown. The net flux through the cylindrical gaussian surface.

0.5M

$\phi = \oint \vec{E} \cdot \overrightarrow{dA}$

$= \int_{RCF} \vec{E} \cdot \overrightarrow{dA} + \int_{LCF} \vec{E} \cdot \overrightarrow{dA} + \int_{CS} \vec{E} \cdot \overrightarrow{dA}$ **0.5M**

$$= \int\limits_{RCF} EdA\cos 0° + \int\limits_{LCF} EdA\cos 0° + \int\limits_{CS} EdA\cos 90°$$ **0.5M**

= E A + EA + 0

ϕ = 2 EA   ... (1)

Here A is the area of cross-section of each circular face *i.e.* LCF and RCF.

The total charge enclosed by the gaussian cylinder

= σA ... (2)   **0.5M**

Using Gauss's theorem, from (1) and (2),

$$2\ EA = \frac{\sigma A}{\varepsilon_0}$$

$$E = \frac{\sigma}{2\varepsilon_0}$$

Ans.29 -   I (A)   II (C)   III (D)   IV (C)   0R   IV (B) **(4X1=4)**

Ans.30 -   I (D)   II (C)   III (A)   IV (B)   0R   IV (A) **(4X1=4)**
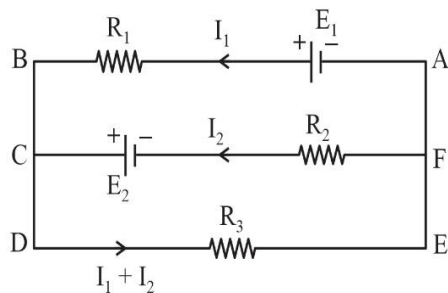
(5 Marks)

Ans.31 – (I) (a) Kirchhoff's I Law : The algebraic sum of all the currents meeting at a point in an electrical circuit is always equal to zero.   **1M**
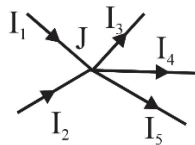
[+I$_1$] + [+I$_2$] + [−I$_3$] +[−I$_4$] + [− I$_5$] = 0

Or   I$_1$ + I$_2$ = I$_3$ + I$_4$ + I$_5$

Kirchhoff's II Law : The algebraic sum of the changes in potential around any closed resistor loop must be zero.
1M

For closed mesh ABCFA

[+E$_1$] [− I$_1$R$_1$] + [−E$_2$] + [+I$_2$R] = 0   ... (1)

For closed mesh FCDEF

[+E$_2$] + [-(I$_1$+I$_2$)]R$_3$ + [−I$_2$R$_2$] = 0   ... (2)

(b). $I = \dfrac{\varepsilon}{R_0 + r}$ *Where R_0 is resistor at room tempere* 20^0 ½

$\Rightarrow R_0 = \frac{\varepsilon}{I} - 1$

OR $R_0 = \frac{100}{10} - 1 = R_0 = 9\Omega$ ½

Now Final temperature is 320^0C

So, $R = R_0 (1 + \alpha \Delta T)$ ½

$\quad = 9 ((1 + 3.7 \times 10^{-4} \times 300)$

$\quad = 10$ Ohm   ½

Power Consumed by cell $(P) = i^2 r$ ½

$$= (\frac{\varepsilon}{R_0 + r})^2 \times r \quad Watt$$

$$= (\frac{100}{11})^2 = 82.64 \text{ W}$$ ½

OR

(II) (a) The Wheatstone bridge is as shown in the figure

1M
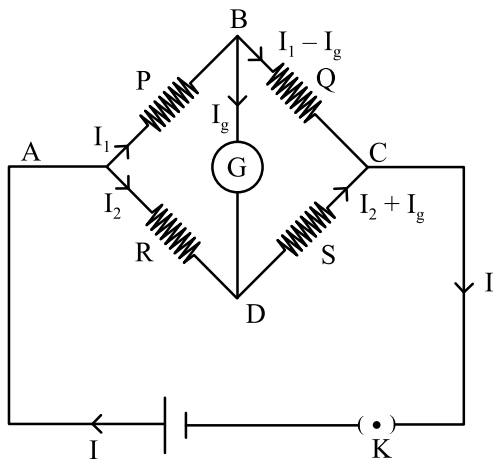
0.5M

Applying Kirchhoff's II law to mesh ABDA

$I_1 P + I_g G - I_2 R = 0$ …..(1)   **0.5M**

For the mesh BCDB

$(I_1 - I_g)Q + [-(I_2 + I_g)S] + [-I_g G] = 0$ (2)   **0.5M**

When the bridge is balanced, no current flows through the galvanometer

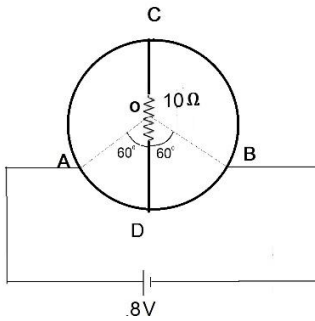i.e. $I_g = 0$ (3)

∴ From equations (1) and (2) and (3)

$I_1P = I_2R$ ... (4)
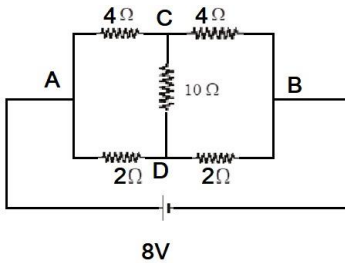
$I_1Q = I_2S$ ... (5)

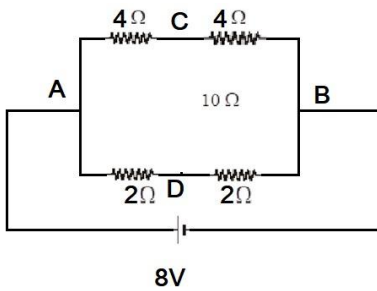From equations (4) and (5) , $P/Q = R/S$.   **0.5M**

(b).

This circuit is balanced wheat stone bridge that can be drawn as below,

As it is balanced wheatston bridge ,so circuit will be as below   1

$V_{AB} = 8V$, hence Current through ADB $= \dfrac{8}{4} = 2A$ 1

(for V.I. Candidates)

(II) (a) question is same

(b) The sensitivity of a Wheatstone bridge is the amount of deflection in the attached galvanometer for every unit

change in the unknown resistance   **1M**

A Wheatstone bridge is most sensitive when its four arms have resistances that are of the same order of magnitude. This means that all four resistors provide the same output resistance. A Wheatstone bridge is in a balanced state when its voltmeter shows zero deflection   **1M**

Ans.32 -   (I) AC Generat   **(5 Marks)**

It is a device used to convert mechanical energy into electrical energy

Principle: It is based on the principle of electromagnetic induction. When a closed coil is rotated rapidly in a strong magnetic field, the magnetic flux linked with the coil changes continuously. Hence an emf is induced in the coil and a current flows in it. In fact, the mechanical energy expended in rotating the coil appears as electrical energy in the coil.

1M

Construction: Main Parts   **1M**

1. **Armature**: It is a rectangular coil ABCD having a large number of turns of insulated copper wire wound on a soft-iron core. The use of soft-iron core increases the magnetic flux linked with the armature.

2. **Field Magnet:** It a strong electromagnet having concave pole pieces N and S. The armature is rotated between these pole pieces about an axis perpendicular to the magnetic field.

3. **Slip Rings:** The leads from the armature coil ABCD are connected to two copper rings R_1 and R_2 called the 'slip rings'. These rings are concentric with the axis of the armature coil and rotate with it.

4. **Brushes:** These are two carbon pieces B_1 and B_2 called brushes which remain stationary pressing against the slip rings R_1 and R_2 respectively. The brushes are connected to an external circuit.

Working Theory : When the coil ABCD is rotated inside the field, an emf is induced between its two ends. Let the plane of the coil be at right angles to the magnetic field at t = 0 and angular speed of the rotation of the coil be ω. Then at time t, θ = ωt. The magnetic flux linked with the coil at time t is

ϕ = n BA cosωt

Induced emf $e = \dfrac{-d\phi}{dt} = \dfrac{-d}{dt}\left[nBA\cos\omega t\right]$

⇒ e = n BA ω sinωt

e = $e_0$sinωt Where e_0 = $nBA\omega$ is the peak value of emf.

The current in the external load is given by

$i = \dfrac{e_0 \sin \omega t}{R_L}$

i = i_0 sinωt Here i_0 is the peak value of the current   **1M**
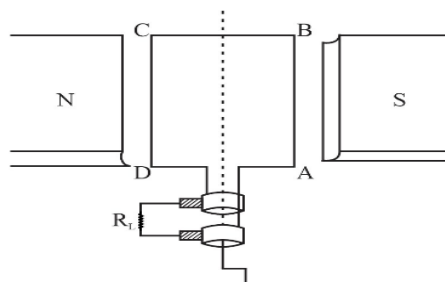
1M
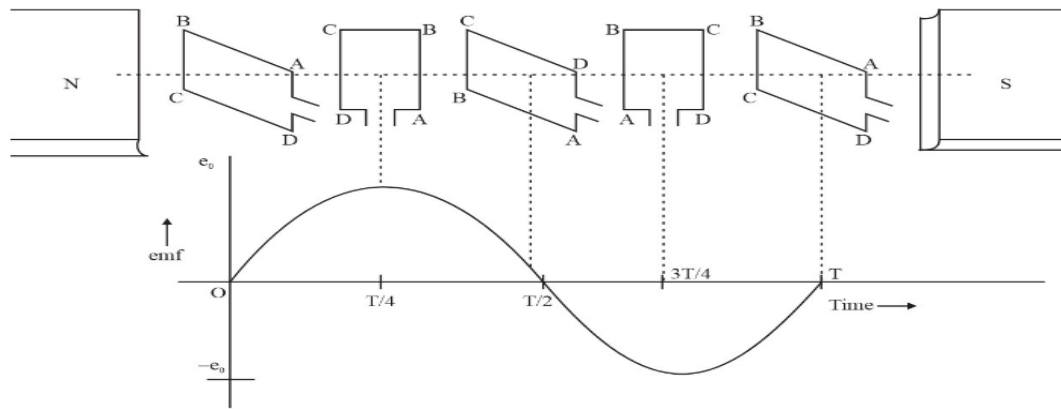
1M

In an ac generator the source of electrical energy is the mechanical energy.

OR

(II)

(a)TRANSFORMER

Use: It is a device which converts low ac voltage at high current into high ac voltage at low current and vice – versa.

Principle: It consists of two coils P and S wound on a closed soft iron core. The coil which is fed from the ac supply is called primary coil (P) and the other connected to the load is called secondary coil (S). The core of the transformer is made of soft -iron to reduce hysteresis loss and is laminated to reduce eddy current losses. **1M**

Working: When an alternating emf e_p is impressed on the primary winding it sends an ac current through it which sets up an alternating magnetic flux in the core. This induces an alternating emf e_s in the secondary. If N_P and N_s are the number of turns in primary and secondary coil, their linkages with the flux are

$\phi_P = N_P BA$ B → Magnetic induction

$\phi_S = N_s BA$ A → Area of cross section   **0.5 M**

The magnitude of the emf induced in the secondary

$$e_s = \frac{d\phi_S}{dt} = N_S A \frac{dB}{dt} \qquad \dots (1)$$

The changing flux also induces an emf in the primary, whose magnitude

$$e_P = \frac{d\phi_P}{dt} = N_P A \frac{dB}{dt} \qquad \dots (2)$$

From equations (1) and (2)

$$\frac{\text{emf induced in secondary}}{\text{voltage applied to primary}} = \frac{e_s}{e_P} = \frac{N_s}{N_P} \qquad \dots (3) \qquad\qquad \textbf{0.5 M}$$

$\frac{N_S}{N_P}$ = turns ratio or transformation ratio.

If $N_s > N_P$, $e_S > e_P$ → Such a transformer is called step-up transformer

If $N_S < N_P$, $e_s < e_P$ → Such a transformer is called step-down transformer

In an ideal transformer

Instantaneous output power = instantaneous input power

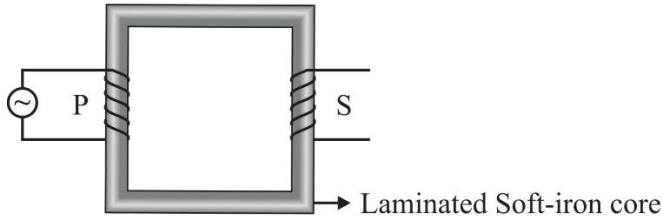$$e_s i_s = e_P i_P \qquad \dots (4)$$

From equations (3) and (4)

$$\frac{e_s}{e_p} = \frac{i_p}{i_s} = \frac{N_s}{N_p}$$ **0.5 M**

In a step- up transformer $N_s > N_p$, $e_s > e_p$ but $i_s < i_p$

In a step-down transformer $N_s < N_p$, $e_s < e_p$ but $i_s > i_p$

At the generating station a step-up transformer is used for stepping up the voltage and at the various receiving substations a step-down transformer is used

→ Laminated Soft-iron core **0.5M**

(b) The two sources of energy losses are eddy current losses and flux leakage losses. **1M**

(c) There is no violation of the principle of the conservation of energy in a step up transformer. When output voltage increases the output current decreases automatically keeping the power the same. **1M**

(5 Marks)

Ans.33 – (I) Given f_0=15m, f_e=1cm=0.01m

(i) Angular magnification of the telescope M = $\frac{f_0}{f_e}=\frac{15}{0.01}$=1500 **1M**

(ii) Let d be the diameter of moon's image formed by the objective lens.

Therefore, Angle subtended by the moon at the objective lens

$$\alpha =\frac{diameter\ of\ the\ moon}{Radius\ of\ lunar\ orbit} = \frac{3.48\times10^6}{3.8\times10^8} \quad (1)$$ **1.5M**

Similarly, the angle subtended by moon's image (formed by the objective) at the objective

$$\alpha=\frac{diameter\ of\ moon's\ image}{f_0}=\frac{d}{15} \quad (2)$$ **1.5M**

Comparing equations (1) and (2) we have

$$\frac{d}{15}=\frac{3.48\times10^6}{3.8\times10^8}$$

$$d=\frac{3.48\times10^6}{3.8\times10^8} \times 15=0.137m=13.7cm$$ **1M**

OR

(II) (a) For eyepiece, v_e = -25cm, f_e= 6.25cm, u_e= ?

Using $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

$$\frac{1}{u_e} = \frac{1}{v_e} - \frac{1}{f_e}=\frac{1}{-25} - \frac{1}{6.25}=\frac{-1}{5}$$ **0.5M**

u_e = - 5cm   **0.5M**

Therefore the image formed by the objective is formed at a distance of 10 cm towards the eyepiece.

Hence for the objective, v_0 = +10 cm, f_0= 2 cm, v_0= ?

$$\frac{1}{u_0} = \frac{1}{v_0} - \frac{1}{f_0} = \frac{1}{10} - \frac{1}{2}$$ **0.5M**

u_0 = - 2.5 cm   **0.5M**

Therefore the magnifying power M = $\frac{v_0}{|u_0|}(1+\frac{D}{f_e}) = \frac{10}{2.5}(1+\frac{25}{6.25}) = 20$ **0.5M**

(b) When the final image is formed at infinity the object for the eyepiece must lie at its principal focus. Therefore the distance of the image formed by the objective from its optical center,

v_0 = 15-6.25 = 8.75 cm   **0.5M**

$$\frac{1}{u_0} = \frac{1}{v_0} - \frac{1}{f_0} = \frac{1}{8.75} - \frac{1}{2} = \frac{6.75}{17.50}$$ **0.5M**

$u_0 = \frac{-17.5}{6.75}$ = - 2.6 cm   **0.5M**

M = $\frac{v_0}{|u_0|}.\frac{D}{f_e} = \frac{8.75}{2.6} \times \frac{25}{6.25}$ = 13.5   **1M**

SAMPLE PAPER (2024 -25)

CHEMISTRY THEORY (043)

Max. Marks:70   **Time: 3 hours**

<small>GENERAL INSTRUCTIONS:</small>

Read the following instructions carefully.

(a) There are **33** questions in this question paper with internal choice.

(b) SECTION A consists of 16 multiple-choice questions carrying 1 mark each.

(c) SECTION B consists of 5 short answer questions carrying 2 marks each.

(d) SECTION C consists of 7 short answer questions carrying 3 marks each.

(e) SECTION D consists of 2 case-based questions carrying 4 marks each.

(f) SECTION E consists of 3 long answer questions carrying 5 marks each.

(g) All questions are compulsory.

(h) Use of log tables and calculators is not allowed.


SECTION A

The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

1   Ammonolysis of ethyl chloride followed by reaction of the amine so formed with   1
        1 mole of methyl chloride gives an amine that

    a. reacts with Hinsberg reagent to form a product soluble in an alkali.
    b. on reaction with Nitrous acid, produced nitrogen gas.
    c. reacts with Benzenesulphonyl chloride to form a product that is insoluble in alkali.
    d. does not react with Hinsberg reagent.

2   Which one of the following has the highest dipole moment?   1

    a. CH_3F
    b. CH_3Cl
    c. CH_3I
    d. CH_3Br

3   Match the properties given in column I with the metals in column II   1

Column I	Column II
(i) Actinoid having configuration $[Rn]\,5f^{7}6d^{1}7s^{2}$	(A) Ce
(ii) Lanthanoid which has $4f^{14}$ electronic configuration in +3 oxidation state.	(B) Lu
(iii) Lanthanoid which show +4 Oxidation state	(C) Cm

a. (i)-(C), (ii)-(B), (iii)-(A)
b. (i)-(C), (ii)-(A), (iii)-(B)
c. (i)-(A), (ii)-(B), (iii)-(C)
d. (i)-(B), (ii)-(A), (iii)-(C)

4   Study the graph showing the boiling points of bromoalkanes and identify the   1
compounds.
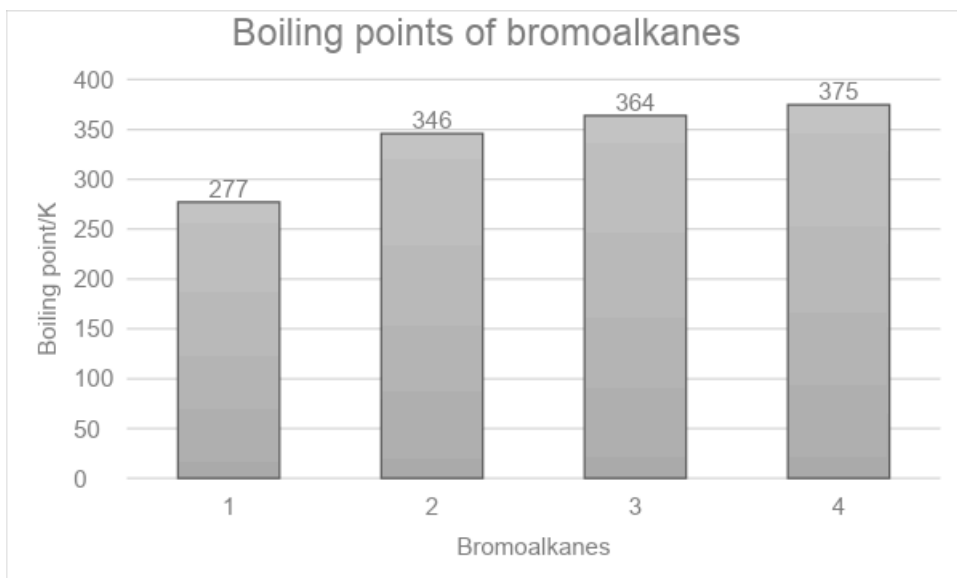
a. 1 = Bromomethane, 2= 2-Bromobutane, 3= 1-Bromobutane,
   4= 2-Bromo-2-methylpropane

b. 1 =1-Bromobutane, 2= 2-Bromo-2-methylpropane, 3= 2-Bromobutane,
   4= Bromomethane

c. 1 = Bromomethane, 2=1-Bromobutane, 3= 2-Bromo-2-methylpropane,
   4= 2-Bromobutane,

d. 1 =Bromomethane, 2= 2-Bromo-2-methylpropane, 3=2- Bromobutane,
   4= 1-Bromobutane

(for visually challenged learners)
Which of the following haloalkanes has the highest boiling point?
   a. 2-Bromo-2-methylpropane
   b. 2-Bromobutane
   c. Bromomethane
   d. 1-Bromobutane

5   The initial concentration of R in the reaction R$\rightarrow$P is 4.62 x 10^{-2} mol/L. What is   1
the half life for the reaction if k = 2.31x 10^{-2} molL^{-1}s^{-1}

   a. 30 s
   b. 3 s
   c. 1 s
   d. 10 s

6   When $C_6H_5COOCOCH_3$ is treated with H_2O , the product obtained is :   1

   a. Benzoic acid and ethanol
   b. Benzoic acid and ethanoic acid
   c. Acetic Acid and phenol
   d. Benzoic anhydride and methanol

7   1

Formulation of Cobalt(III) Chloride-Ammonia Complexes		
Colour	Formula	Solution conductivity corresponds to
Yellow	$[Co(NH_3)_6]^{3+}3Cl^-$	Y
Purple	$[CoCl(NH_3)_5]^{2+}2Cl^-$	1:2 electrolyte
Green	X	1:1 electrolyte

'X' and 'Y' in the above table are:

   a. X=$[Co(NH_3)_6]^{2+}3Cl^-$, Y= 1:3
   b. X= $[Co(NH_3)_4Cl_2]^+Cl,^-$ Y= 1:3
   c. X=$[Co(NH_3)_4Cl_2]^+Cl^-$, Y= 1:1
   d. X=$[Co(NH_3)_4Cl_2]^{3+}3Cl^-$, Y= 1:1

8   Which of the following contains only β-D- glucose as its monosaccharide unit: 1

   a. Sucrose
   b. Cellulose
   c. Starch
   d. Maltose

9   Which one of the following sets correctly represents the increase in the   1
paramagnetic property of the ions?

   a. $Ti^{3+}< Fe^{2+} < Cr^{3+} < Mn^{2+}$
   b. $Ti^{3+}< Mn^{2+}< Fe^{2+} < Cr^{3+}$
   c. $Mn^{2+}< Fe^{2+}< Cr^{3+}<Ti^{3+}$
   d. $Ti^{3+}< Cr^{3+}< Fe^{2+} < Mn^{2+}$

10   A first-order reaction is found to have a rate constant, $k = 5.5 \times 10^{-14}$ s^{-1}. The   1
        time taken for completion of the reaction is:

        a. 1.26 x 10^{13} s
        b. 2.52 x 10^{13} s
        c. 0.63 x 10^{13} s
        d. It never goes to completion

11   A student was preparing aniline in the lab. She took a compound "X" and   1
        reduced it in the presence of Ni as a catalyst. What could be the compound "X"

        a. Nitrobenzene
        b. 1-Nitrohexane
        c. Benzonitrile
        d. 1-Hexanenitrile

12   Which of the following compound gives an oxime with hydroxylamine: 1

        a. CH_3COCH_3
        b. CH_3COOH
        c. $(CH_3CO)_2O$
        d. CH_3COCl

13   **Assertion (A):** $[Mn(CN)_6]^{3-}$ has a magnetic moment of two unpaired electrons   1
        while $[MnCl_6]^{3-}$ has a paramagnetic moment of four unpaired electrons.
        Reason (R): $[Mn(CN)_6]^{3-}$ is inner orbital complexes involving d^2sp^3
        hybridisation,on the other hand, $[MnCl_6]^{3-}$ is outer orbital complexes involving
        sp^3d^2 hybridisation.

        Select the most appropriate answer from the options given below:
            a. Both A and R are true and R is the correct explanation of A
            b. Both A and R are true but R is not the correct explanation of A.
            c. A is true but R is false.
            d. A is false but R is true.

14   **Assertion (A)**: For strong electrolytes, there is a slow increase in molar   1
        conductivity with dilution and can be represented by the equation

        $\Lambda_m^\circ = \Lambda_m - A\ c^{1/2}$

        Reason (R): The value of the constant 'A' for NaCl, $CaCl_2$, and $MgSO_4$ in a
        given solvent and at a given temperature is different.

        Select the most appropriate answer from the options given below:
            a. Both A and R are true and R is the correct explanation of A
            b. Both A and R are true but R is not the correct explanation of A.
            c. A is true but R is false.
            d. A is false but R is true.

15   **Assertion (A)** Glucose does not form the hydrogensulphite addition product   1
      with $NaHSO_3$.
      Reason (R): Glucose exists in a six-membered cyclic structure called pyranose
      structure.

      Select the most appropriate answer from the options given below:
          a. Both A and R are true and R is the correct explanation of A
          b. Both A and R are true but R is not the correct explanation of A.
          c. A is true but R is false.
          d. A is false but R is true.

16   **Assertion (A):** The half- life for a zero order reaction is independent of the initial   1
      concentration of the reactant.
      Reason (R): For a zero order reaction, Rate = k

      Select the most appropriate answer from the options given below:
          a. Both A and R are true and R is the correct explanation of A
          b. Both A and R are true but R is not the correct explanation of A.
          c. A is true but R is false.
          d. A is false but R is true.


SECTION B

This section contains 5 questions with internal choice in one question. The following
questions are very short answer type and carry 2 marks each.

17   a. Nitrogen gas is soluble in water. At temperature 293 K, the value of K_H is   1
         76.48 kbar . How would the solubility of nitrogen vary (increase, decrease or
         remain the same) at a temperature above 293 K , if the value of K_H rises to
         88.8 kbar.
      b. Chloroform (b.p. 61.2°C) and acetone (b.p. 56°C) are mixed to form an
         azeotrope. The mole fraction of acetone in this mixture is 0.339. Predict   1
         whether the boiling point of the azeotrope formed will be (i) 60°C (ii)64.5 °C
         or (iii)54 °C. Defend your answer with reason.

OR

      a. A soda bottle will go flat (loose its fizz) faster in Srinagar than in Delhi. Is this
         statement correct? Why or why not?   1
      b. How does sugar help in increasing the shelf life of the product?

                                                                                          1

18   a. Write the IUPAC name of the following complex: $K[Cr(H_2O)_2(C_2O_4)_2]H_2O$ 1
         b. Name the metal present in the complex compound of
            (i) Haemoglobin (ii) Vitamin B-12   ½+½

                                                                                          5
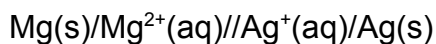
19   Observe the following cell and answer the questions that follow:
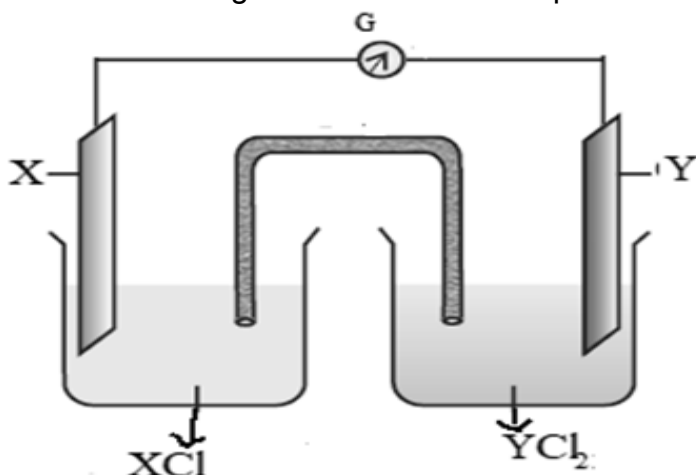
a. Represent the cell shown in the figure.   1
b. Name the carriers of the current in the salt bridge   ½
c. Write the reaction taking place at the anode.   ½

(for visually challenged learners)
For the cell represented as:

$Mg(s)/Mg^{2+}(aq)//Ag^{+}(aq)/Ag(s)$ 1
a. Identify the cathode and the anode   1
b. Write the overall reaction

20   Complete the following reactions by writing the major and minor product in each case (any 2)
                                                                            1
a. $CH_3CH_2Br + KCN \rightarrow$

b. $CH_3CH_2CH = CH_2 + HBr \;\square$ 1

c. $(CH_3)_2CHCHClCH_3 + alc\ KOH \rightarrow$ 1

21   The presence of Carbonyl group in glucose is confirmed by its reaction with   1
hydroxylamine. Identify the type of carbonyl group present and its position. Give
a chemical reaction in support of your answer.   1

SECTION C

This section contains 7 questions with internal choice in one question. The following questions are short answer type and carry 3 marks each.

22   a. Write down the reaction occurring on two inert electrodes when   2
electrolysis of copper chloride is done. What will happen if a concentrated
solution of copper sulphate is replaced with copper chloride?

6

b. Write an expression for the molar conductivity of aluminium sulphate at infinite dilution according to Kohlrausch law.   1

23   Account for the following:
    a. The lowest oxide of transition metal is basic, and the highest is acidic.   1
    b. Chromium is a hard metal while mercury is a liquid metal   1
    c. The ionisation energy of elements of the 3d series does not vary much   1
    with increasing atomic number.

24   a. Give the chemical reaction involved when p-nitrotoluene undergoes Etard   1
    reaction.
    b. Why does Benzoic acid exist as a dimer in an aprotic solvent?   1
    c. Benzene on reaction with methylchloride in the presence of anhydrous   1
    $AlCl_3$ forms toluene. What is the expected outcome if benzene is replaced
    by benzoic acid? Give a reason for your answer.

OR

An organic compound 'X', does not undergo aldol condensation. However 'X' with compound 'Y' in the presence of a strong base react to give the compound 1,3-diphenylprop-2-en-1-one.

                    1
a. Identify 'X' and 'Y'   1
b. Write the chemical reaction involved.   1
c.Give one chemical test to distinguish between X and Y.

25   a. Give the structure of all the possible dipeptides formed when the following   2
    two amino acids form a peptide bond.

    Alanine
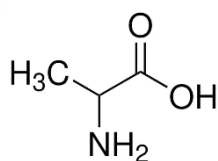
    Glycine
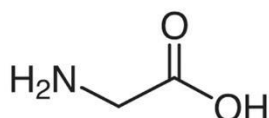
                    1
b. Keratin, insulin, and myosin are a few examples of proteins present in the human body. Identify which type of protein is keratin and insulin and differentiate between them based on their physical properties.

26   Neeta was experimenting in the lab to study the chemical reactivity of alcohols.
      She carried out a dehydration reaction of propanol at 140°C to 180°C. Different
      products were obtained at these two temperatures.
          a. Identify the major product formed at 140°C and the substitution   1+½
             mechanism followed in this case.   1+½
          b. Identify the major product formed at 180°C and the substitution
             mechanism followed in this case.

27   Various isomeric haloalkanes with the general formula C_4H_9Cl undergo   3
      hydrolysis reaction. Among them, compound "A" is the most reactive through
      S_N^1 mechanism. Identify "A" citing the reason for your choice. Write the
      mechanism for the reaction.

28   The equilibrium constant of cell reaction :
      Sn^{4+}(.aq)   +   Al(s)   → Al^{3+} + Sn^{2+} (aq) is 4.617 x 10^{184}, at 25 °C

          a. Calculate the standard emf of the cell.   2
             (Given: log 4.617 x 10^{184} = 184.6644)

          b. What will be the E° of the half cell Al^{3+}/Al , if E° of half cell Sn^{4+}/Sn^{2+} is   1
             0.15 V.

SECTION D

*The following questions are case-based questions. Each question has an internal choice
and carries 4 (2+1+1) marks each. Read the passage carefully and answer the questions
that follow.*

29   Dependence of the rate of reaction on the concentration of reactants,
      temperature, and other factors is the most general method for weeding out
      unsuitable reaction mechanisms. The term mechanism means all the individual
      collisional or elementary processes involving molecules (atoms, radicals, and
      ions included) that take place simultaneously or consecutively to produce the
      observed overall reaction. For example, when hydrogen gas reacts with
      bromine, the rate of the reaction was found to be proportional to the
      concentration of H_2 and to the square root of the concentration of Br_2.
      Furthermore, the rate was inhibited by increasing the concentration of HBr as
      the reaction proceeded. These observations are not consistent with a
      mechanism involving bimolecular collisions of a single molecule of each kind.
      The currently accepted mechanism is considerably more complicated, involving
      the dissociation of bromine molecules into atoms followed by reactions between
      atoms and molecules:

      It is clear from this example that the mechanism cannot be predicted from the

overall stoichiometry.

(source: Moore, J. W., & Pearson, R. G. (1981). *Kinetics and mechanism*. John Wiley & Sons.)

a. Predict the expression for the rate of reaction and order for the following:

$H_2 + Br_2 \square$ 2 HBr   1

What are the units of rate constant for the above reaction?   1

b. How will the rate of reaction be affected if the concentration of Br_2 is tripled?
                                                                                                                           1

OR

What change in the concentration of H_2 will triple the rate of reaction?

c. Suppose a reaction between A and B, was experimentally found to be first   1
order with respect to both A and B. So the rate equation is:

Rate = k[A][B]

Which of these two mechanisms is consistent with this experimental finding? Why?

Mechanism 1

A → C + D (slow)

B + C → E (fast)

Mechanism 2

A + B → C + D (slow)

C → E (fast)
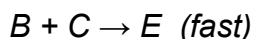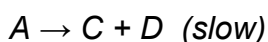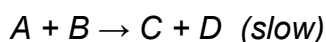
30   Amines are basic in nature. The pK_b value is a measure of the basic strength of an amine. Lower the value of pK_b, more basic is the amine. The effect of substituent on the basic strength of amines in aqueous solution was determined using titrations. The substituent "X" replaced "$-CH_2$" group in piperidine (compound 1) and propylamine $CH_3CH_2CH_2NH_2$, (compound 2).
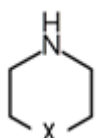
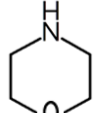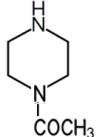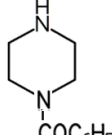Compound 1:   Compound 2: $HXCH_2CH_2NH_2$
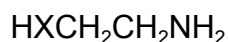
The experimental data is tabulated below:

Substituent "X"	Electro-negativity of X	substituted piperidine compound	pK$_a$	Substituted propylamine compound	pK$_a$
CH$_2$	2.55		11.13	CH$_3$CH$_2$CH$_2$NH$_2$	10.67
NH	3.12		9.81	NH$_2$CH$_2$CH$_2$NH$_2$	10.08
O	3.44		8.36	HOCH$_2$CH$_2$NH$_2$	9.45
CH$_3$CON	3.6		7.94	CH$_3$CONHCH$_2$CH$_2$NH$_2$	9.28
C$_6$H$_5$CON	3.7		7.78	C$_6$H$_5$CONHCH$_2$CH$_2$NH$_2$	——

(source: Hall Jr, H. K. (1956). Field and inductive effects on the base strengths of amines. *Journal of the American Chemical Society*, *78*(11), 2570-2572.)

Study the above data and answer the following questions:

a. Plot a graph between the electronegativity of the substituent vs pK$_b$ value of the corresponding substituted propyl amine (given that pK$_a$ + pK$_b$ =14). Is there any relation between the electronegativity of the substituent and its basic strength?

2

b. The electronegativity of the substituent "C$_6$H$_5$CON" is 3.7, what is the expected pKa value of compound C$_6$H$_5$CONHCH$_2$CH$_2$NH$_2$?

1

(i) 9.9   (ii) 9.5   (iii) 9.3   (iv) 9.1

c. The pKa value of the substituted piperidine formed with substituent "X" is found to be 8.28. What is the expected electronegativity of "X"   1

(i)3.5 (ii)3.4 (iii)3.8 (iv) 3.1

OR

What is the most suitable pKa value of the substituted propylamine formed with substituent "X" with electronegativity 3.0

(i)10.67 (ii)10.08 (iii)10.15 (iv)11.10

(for visually challenged learners)

a.How does the electronegativity of the substituent affect the pK_b value and the basic strength of the substituted propyl amine (given that $pK_a + pK_b = 14$).? Give a reason to support your answer.   2

b. The electronegativity of the substituent "C_6H_5CON" is 3.7, what is the expected pKa value of compound $C_6H_5CONHCH_2CH_2NH_2$?   1

(i) 9.9   (ii) 9.5   (iii) 9.3   (iv) 9.1

c. The pKa value of the substituted piperidine (compound 1) formed with substituent "X" is found to be 8.28. What is the expected electronegativity of "X"   1

(i)3.5 (ii)3.4 (iii)3.8 (iv) 3.1

OR

What is the most suitable pKa value of the substituted propylamine formed with substituent "X" with electronegativity 3.0

(i)10.67 (ii)10.08 (iii)10.15 (iv)11.10

SECTION E
The following questions are long answer types and carry 5 marks each. All questions have an internal choice.

31   a. A purple colour compound A, which is a strong oxidising agent and used for bleaching of wool, cotton, silk and other textile fibres was added to each of the three test tubes along with H_2SO_4. It was followed by strong heating.

A · B · C · Oxalic acid · PbS · KI
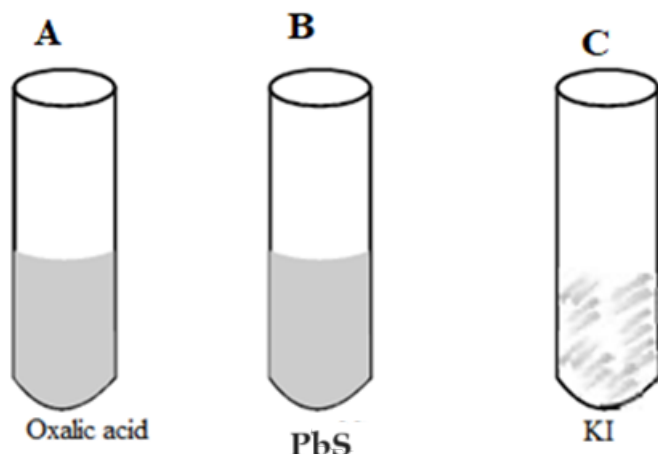
In which of the above test tubes; A,B or C:
    (i) Violet vapours will be formed   1
    (ii) The bubbles of gas evolved will extinguish a burning matchstick. Write   1
    an equation for each of the above observations.

b. A metal ion M^{n+} of the first transition series having d^5 configuration combines with three didentate ligands. Assuming $\Delta_0 < P$:

    (i)   Draw the crystal field energy level diagram for the 3d orbital of this   1
    complex.
    (ii)   What is the hybridisation of M^{n+} in this complex and why?   1
    (iii)   Name the type of isomerism exhibited by this complex.   1

OR

a. Using, Valence Bond Theory identify A, B, C, D, E and F in the following table

S.No	Complex	central metal ion	configuration of metal ion	Hybridization of Metal ion	Geometry of the Complex	Number Of Unpaired Electron	Magnetic Behaviour
i	$[CoF_4]^{2-}$	A	$3d^7$	sp^3	tetrahedral	B	Paramagnetic
ii	$[Cr(H_2O)_2C_2O_4)_2]$	Cr^{3+}	$3d^3$	C	octahedral	3	D
iii	$[Ni(CO)_4]$	Ni	$3d^84s^2$	E	F	0	Diamagnetic

3

b. Write the ionic equations for the reaction of acidified $K_2Cr_2O_7$ with   2
(i)H_2S and (ii)$FeSO_4$

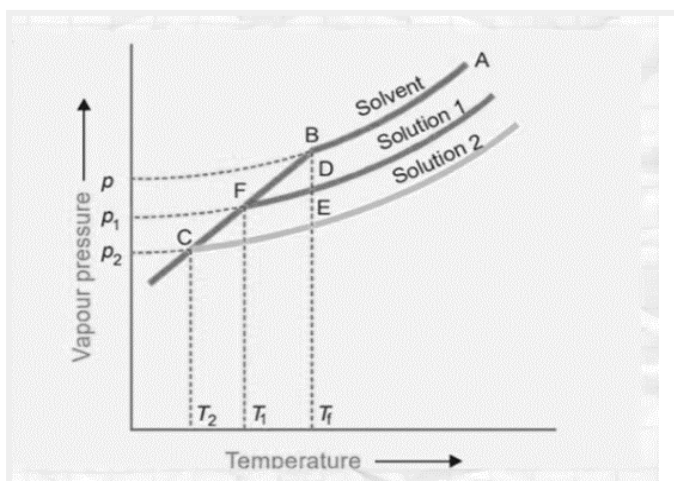32   a. Give reasons for the following:
        (i)The reaction of ethanol with acetyl chloride is carried out in the   1
        presence of pyridine .

(ii) Cresols are less acidic than phenol. 1

b. Williamson's process is used for the preparation of ethers from alkyl halide. Identify the alkyl bromide and sodium alkoxide used for the preparation of 2- Ethoxy-3-methylpentane 1

c. Convert:
    (i) Toluene to 3-nitrobenzoic acid. 1
    (ii) Benzene to m-nitroacetophenone. 1

OR

a. Out of formic acid and acetic acid, which one will give the HVZ reaction? Give a suitable reason in support of your answer and write the chemical reaction involved. 2

b. Alcohols are acidic but they are weaker acids than water. Arrange various isomers of butanol in the increasing order of their acidic nature. Give a reason for the same. 1

c. An organic compound A which is a Grignard reagent is used to obtain 2-methylbutan-2-ol on reaction with a carbonyl compound 'B' . Identify A' and 'B'. Write the equation for the reaction between A and B. 2

33   a. An experiment was carried out in the laboratory, to study depression in freezing point. 1M aqueous solution of $Al(NO_3)_3$ and 1 M aqueous solution of glucose were taken. From the given figure identify solution 1 and solution 2. Give a plausible reason for your answer. 2

b. The osmotic pressure of a solution of cane sugar was found to be 2.46 atm at 300 K. If the solution was diluted five times, calculate the osmotic pressure at the same temperature. 3
How can the osmotic pressure of the given cane sugar solution be decreased without changing its volume? Give a reason for your answer.

OR

a. While giving intravenous injections to the patients, the doctors take utmost care of the concentration of the solution used. Why is it necessary to check the concentration of the solution?   2

b. A solution of phenol was obtained by dissolving 2X 10^{-2} kg of phenol in 1 kg of benzene. Experimentally it was found to be 73 % associated. Calculate the depression in the freezing point recorded.   3

(for visually challenged learners)

a. Which of the two solutions : 1M aqueous solution of $Al(NO_3)_3$ or 1M aqueous solution of glucose will show a greater depression in freezing point? Give a plausible reason for your answer.   2
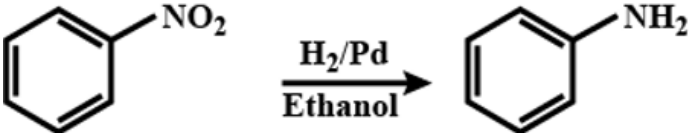
b. The osmotic pressure of a solution of cane sugar was found to be 2.46 atm at 300 K. If the solution was diluted five times, calculate the osmotic pressure at the same temperature.   3

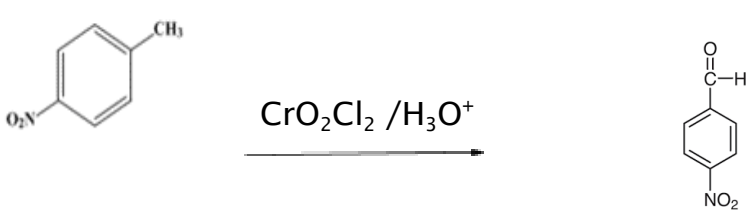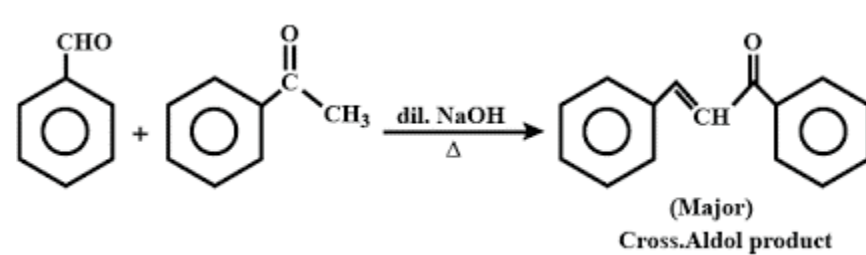How can the osmotic pressure of the given cane sugar solution be decreased without changing its volume? Give a reason for your answer.

OR

a. While giving intravenous injections to the patients, the doctors take utmost care of the concentration of the solution used. Why is it necessary to check the concentration of the solution?   2
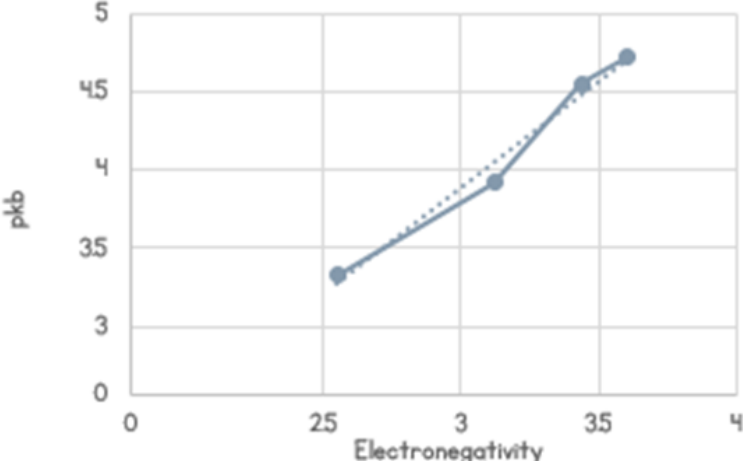
b. A solution of phenol was obtained by dissolving 2X 10^{-2} kg of phenol in 1 kg of benzene. Experimentally it was found to be 73 % associated. Calculate the depression in the freezing point recorded.   3

14

MARKING SCHEME
SAMPLE PAPER (2024 -25)

CHEMISTRY THEORY
(043)

	SECTION A	
1	(c) reacts with Benzenesulphonyl chloride to form a product that is insoluble in alkali	1
2	(b)CH_3Cl The order followed is this $CH_3I < CH_3Br < CH_3F < CH_3Cl$, though F is most electronegative, the bond length is small as compared to C-Cl. Dipole moment is the product of the charge and the bond length.	1
3	(a) (i)-(C), (ii)-(B), (iii)-(A)	1
4	(d) 1 =Bromomethane, 2= 2-Bromo-2-methylpropane, 3=2-Bromobutane, 4= 1-Bromobutane *(for visually challenged learners)* d. 1-Bromobutane	1 1
5	(c) the order of reaction is zero as the unit of k is $molL^{-1}s^{-1}$. Thus half life = $[R]_o$ / 2k = 4.62 x 10^{-2} /2 x 2.31 x 10^{-2}	1
6	(b) Benzoic acid and ethanoic acid $C_6H_5COOCOCH_3$ <u>H_2O</u> $C_6H_5COOH + CH_3COOH$	1
7	(b) X=$[Co(NH_3)_4Cl_2]^+Cl^-$, Y= 1:3	1
8	(b) Cellulose Starch contains only α glucose, sucrose contains α-D-glucose and β-D-fructose glucose, maltose contains α-D-glucose and cellulose is a polymer of β-D-glucose.	1
9	(d) $Ti^{3+} < Cr^{3+} < Fe^{2+} < Mn^{2+}$ No. of unpaired electrons : Ti^{3+} (1), Cr^{3+} (3), Fe^{2+} (4) and Mn^{2+} (5) Paramagnetism depends on the number of unpaired electrons	1
10	(d) It never goes to completion First order reaction [R] = [Ro] e^{-kt} If [R]=0 then	1

	e^{-kt} = 0, which is not possible for any finite value of t. Here, t is ∞.	
11	(a) Nitrobenzene	1
12	(a)CH_3COCH_3 Aldehyde and ketones give nucleophilic addition reactions. Other carbonyl compounds do not give nucleophilic addition reactions.	1
13	(a) Both A and R are true and R is the correct explanation of A	1
14	(d) A is false but R is true. $\Lambda^{\circ}_m = \Lambda_m - A\ c^{½}$ is an incorrect equation, the correct equation is $\Lambda_m = \Lambda^{\circ}_m - A\ c^{½}$	1
15	(b) Both A and R are true but R is not the correct explanation of A. Due to the absence of a free aldehydic group, it does not give a reaction with $NaHSO_3$.	1
16	(d)A is false but R is true. The half- life for a zero order reaction $t_{1/2}$ = [Ro]/2k where [Ro] is the initial concentration of the reactant.	1

|---|
| **SECTION B** |

17	(a) Solubility of gas is inversely proportional to the value of Henry's constant K_H. On increasing temperature nitrogen gas becomes less soluble because its K_H value increases. (b) (ii)64.5 °C Chloroform and acetone mixture show negative deviation from Raoult's law therefore, they form maximum boiling azeotrope at a specific composition. The boiling point of the mixture so obtained will be higher than the individual components. **OR** (a) At higher altitudes i.e. in Srinagar the atmospheric pressure is	½ ½ ½ ½ 1

2

	lower. The solubility of a gas in a liquid is directly proportional to the partial pressure of the gas over the solution, therefore, the carbon dioxide dissolved in water will be lesser at Srinagar making the soda go flat faster. (b)Preservation of fruits by adding sugar/salt protects against bacterial action. Through osmosis, a bacterium on canned fruit loses water, shrivels and dies.	1
18	(a) Potassium diaquadioxalatochromate(III) hydrate (b) (i) Haemoglobin: Iron (ii) Vitamin B-12: Cobalt	1 1
19	(a) $Y(s)|Y^{2+}(aq) \| X^+(aq)| X(s)$ (b) ions are carrier of current in salt bridge (c) $Y(s)$ $\rightarrow$ $Y^{2+}(aq)$ + $2e^-$ **(for visually challenged learners)** a. Cathode: silver , Anode: Magnesium b. $Mg + 2Ag^+ \square Mg^{2+} + 2Ag$	1 ½ ½
20	(a)CH_3CH_2CN (major), CH_3CH_2NC (minor) (b) $CH_3CH_2CHBrCH_3$ (major) $CH_3CH_2CH_2CH_2Br$ (minor) (c) $(CH_3)_2C=CHCH_3$ (major) $(CH_3)_2CHCHCH_2$ (minor)	½+½ ½+½ ½+½
21	The carbonyl group present in glucose is aldehyde and the C_1 atom . Glucose gets oxidised to six-carbon carboxylic acid (gluconic acid) with COOH group at the C1 atom on reaction with a mild oxidising agent like bromine water. This indicates that the carbonyl group is present as an aldehydic group	½ ,½ 1
	SECTION C	
22	(a) <u>Product of electrolysis of Copper Chloride</u> Cathode(-) Cu^{2+} + $2e^-$ $\rightarrow$ $Cu(s)$ anode(+) $2Cl^-$ $\rightarrow$ Cl_2 + $2e^-$ <u>Product of electrolysis of concentrated Copper Sulphate</u> Anode(+) $SO_4^{2-} \rightarrow$ S_2O_8 + $2e^-$ Cathode (-) Cu^{2+} + $2e^-$ $\rightarrow$ $Cu(s)$ (b) $\wedge^0_m[Al_2(SO_4)_3]$ = $2 \lambda^0_m (Al^{3+})$ + $3 \lambda^0_m (SO_4^{2-})$	1 1 1
23	(a) In the case of a lower oxide of a transition metal, the metal atom has some electrons present in the valence shell of the metal atom that are not involved in bonding. As a result, it can donate electrons and behave as a base whereas in higher oxide of a transition metal,	1

	the metal atom does not have an electron in the valence shell for donation. As a result, it can accept electrons and behave as an acid.	
	(b) Chromium has unpaired electrons which result in strong metallic bonding which results in it being a hard solid and the absence of unpaired electrons in Hg results in it being a liquid.	1
	(c) The increase in effective nuclear charge responsible for steady increase in ionisation energy is counterbalanced by shielding effect of (n-1)d electrons	1
24	(a)	1
	(b) Benzoic acid undergoes extensive intermolecular hydrogen bonding , leading to the formation of dimer .	1
	(c) Benzoic acid does not undergo reaction with CH_3Cl i.e Friedel Craft reaction because the carboxyl group is deactivating and the catalyst aluminium chloride (Lewis acid) gets bonded to the carboxyl group	1
	OR	
	Compound 'X' = Benzaldehyde , Compound Y = Acetophenone	½,½
		1
	Chemical test to distinguish between X and Y is the Tollen Test .	
	Benzaldehyde undergoes SIlver mirror test with Tollen reagent and forms silver mirror . However Acetophenone does not react with Tollen Reagent .	1

25	(a) (Glycine) (Alanine) (Alanine) (Glycine) (b) (i) Keratin is a fibrous protein. fibre– like structure is formed. Such proteins are generally insoluble in water. (ii)Insulin is a globular protein . This structure results when the chains of polypeptides coil around to give a spherical shape. These are usually soluble in water.	1 1 ½ ½
26	(a) Ethanol undergoes a dehydration reaction. At 140ºC, diethyl ether is formed. The formation of ether is a nucleophilic S_N2 substitution bimolecular reaction (b) When the temperature exceeds 170ºC, ethene is the major product. Nucleophilic substitution S_N1 unimolecular reaction 	1+½ 1+½
27	"A" is $(CH_3)_3CCl$, the carbocation intermediate obtained in tertiary alkyl halide is most stable, making A most reactive of all possible isomers. 	½ +½ 1 1

5

28	$$E_{Cell} = E^o{}_{Cell} - \frac{2.303RT}{nF} \cdot \log Kc$$ At 298 K $$E_{Cell} = E^o{}_{Cell} - \frac{0.0591}{n} \log Kc$$	
		½
	At equilibrium Ecell =0, n= 6	½
	$$E^o{}_{Cell} = \frac{0.0591}{n} \log Kc$$	
	=0.059/6 log 4.617 x 10^{184}	½
	= 0.00983 x 184.6644	½
	= 1.8152	
	(ii) $E^o{}_{cell} = E^0{}_{Sn4+/Sn2+} - E^0{}_{Al3+/Al}$	½
	1.81 $= -0.15 - E^0{}_{Al3+/Al}$	
	$E^0{}_{Al3+/Al} = -1.66$ V	½

SECTION D

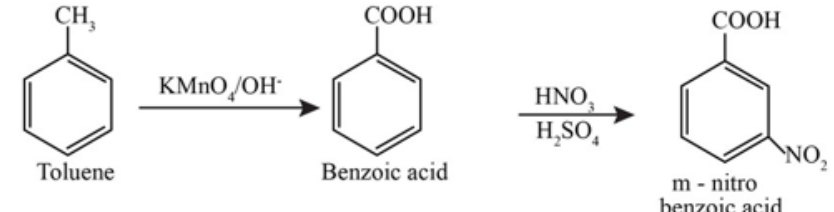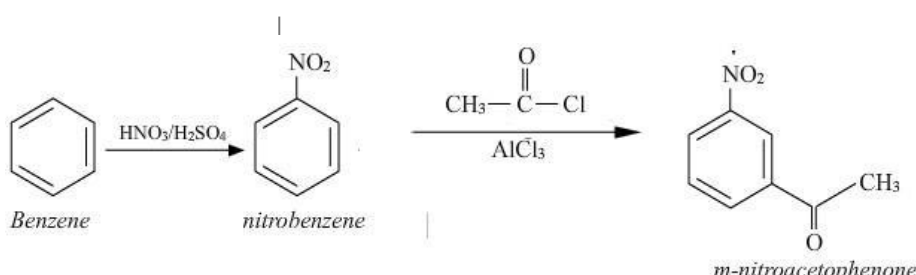| 29	a. Rate = k $[H_2] [Br_2]^{1/2}$	½
	order = 3/2	½
	units of k = $\frac{molL^{-1}s^{-1}}{mol^{3/2}L^{-3/2}}$ = mol$^{-1/2}$L$^{1/2}$s^{-1}	1
	b. Rate = k $[H_2] [Br_2]^{1/2}$ If conc of Br_2 is tripled	
	Rate' = k $[H_2] [3Br_2]^{1/2}$	
	Rate' = $\sqrt{3}$ k $[H_2] [Br_2]^{1/2}$	
	Rate' = $\sqrt{3}$ Rate	1
	OR	
	Rate = k $[H_2] [Br_2]^{1/2}$ If conc of Br_2 is tripled	
	Rate' = 3 Rate= k $[xH_2] [Br_2]^{1/2}$	
	3 Rate = k $[x H_2] [Br_2]^{1/2}$	
	x = 3, the concentration of H_2 is tripled	1

	c. The slowest step is the rate-determining step. From mechanism 2, Rate = k [A] [B] while from mechanism 1 Rate = k [A] Therefore mechanism 2, is consistent with the experimental finding	1
30	a	

pkb (y-axis), **Electronegativity** (x-axis) | 1½ |
| | ……. Is the line of best fit
The pKb increases with an increase in the electronegativity of the substituent, therefore the basic strength decreases with an increase in the electronegativity of the substituent | ½ |
| | b. (iv) 9.1 | 1 |
| | c. (i) 3.5

 OR | 1 |
| | (iii) 10.15 | 1 |
| | *(for visually challenged learners)*
The pKb increases with an increase in the electronegativity of the substituent, therefore the basic strength decreases with an increase in the electronegativity of the substituent | 1 |

Substituent "X"	Electro-n egativity of X	Compound		pKa	pKb
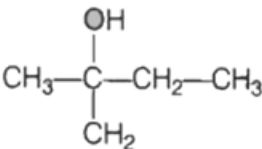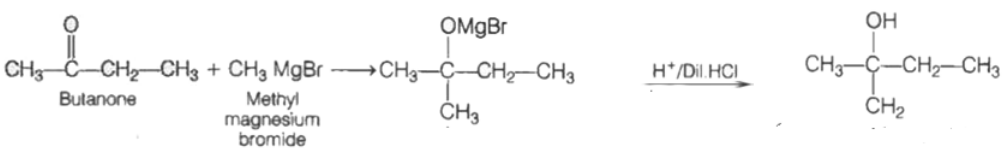
CH$_2$	2.55	CH$_3$CH$_2$CH$_2$NH$_2$	10.67	3.33	
NH	3.12	NH$_2$CH$_2$CH$_2$NH$_2$	10.08	3.2	1
O	3.44	HOCH$_2$CH$_2$NH$_2$	9.45	4.55	
CH$_3$CON	3.6	CH$_3$CONHCH$_2$CH$_2$NH$_2$	9.28	4.72	

b. (iv) 9.1

1

c. (i) 3.5

OR

1

(iii) 10.15

1

SECTION E

31	(a) (i) Test tube C $10I^- + MnO_4^- + 16 H^+ \rightarrow 5I_2 + 2Mn^{2+} + 8 H_2O$ (ii) Test tube A $C_2O_4^{2-} + 2MnO_4^- + 16 H^+ \rightarrow 10CO_2 + 2Mn^{2+} + 8 H_2O$	1 1

(b) (i)

(ii) Sp^{3}d^2 , Since $\Delta_0 > P$ it will form an outer orbital complex as the electrons in the 3d orbital will not pair up.
(iii) Optical isomerism.

2

½

½

OR

a. A = Co^{2+}
   B = 3
   C = d^2sp^3
   D = Paramagnetic
   E= sp^3
   F = tetrahedral
b.

½
½
½
½
½
½

	(i) $Cr_2O_7^{2-} + 8\,H^+ + 3\,H_2S \rightarrow 2\,Cr^{3+} + 3\,S + 7\,H_2O$	1
	(ii) $Cr_2O_7^{2-} + 14\,H^+ + 6\,Fe^{2+} \rightarrow 2\,Cr^{3+} + 6\,Fe^{3+} + 7\,H_2O$.	1
32	a. (i) The reaction of ethanol with acetyl chloride is carried out in the presence of pyridine . Pyridine is a strong organic base .The function of pyridine is to remove HCl formed in the reaction.	1
	(ii) The electron releasing groups, such as alkyl groups, in general, do not favour the formation of phenoxide ion resulting in decrease in acid strength. Cresols, for example, are less acidic than phenol.	1
	b. C_2H_5Br and $CH_3CH_2CH(CH_3)CH_2CH_2ONa$ yields 2-ethoxy-3-methylpentane	1
	c. (i)	1
	(ii)	1
	OR	
	a. Acetic acid will give HVZ reaction. Carboxylic acids having an α-hydrogen are halogenated at the α-position on treatment with chlorine or bromine in the presence of a small amount of red phosphorus to give α-halo carboxylic acids.	½
		1
	CH_3COOH $\underline{\quad Br_2/red\ P \quad}$ $CH_2BrCOOH$	½
	b. Isomers of butanol are: Butan-1-ol , butan-2-ol , 2-methylpropanol , 2-methylpropan-2-ol . Acidic strength in isomeric alcohols varies as follows :	

9

		½
	The acidic character of alcohols is due to the polar nature of O–H bond. An electron-releasing group (–CH$_3$, –C$_2$H$_5$) increases electron density on oxygen tending to decrease the polarity of O-H bond 2-methylpropan-2-ol< 2-methylpropanol < butan-2-ol <Butan-1-ol	½
	c. An organic compound A is a Grignard reagent : RMgX B is a ketone RCOR'	
	A + B □ (2-methylbutan-2-ol)	
	Ketones lead to the formation of tertiary alcohol ,so the compound B is a ketone B – Butan-2-one and A ' is CH$_3$ MgBr	½ + ½
		1

33	a. Depression in the freezing point is a colligative property. In dilute solutions the depression of freezing point (ΔTf) is directly proportional to the molal concentration of the solute in a solution. From the graph it is interpreted that Solution 2 shows more depression in freezing point
	        1 M Al(NO)$_3$ has higher i value (i=3) than 1 M glucose (i=1)
	        1 M Al(NO)$_3$ will have higher depression , hence solution 2 is Al(NO)$_3$ solution and solution 1 is glucose solution.
		1
		
		½
		
		½

	(for visually challenged learners) a. 1 M Al(NO)$_3$ shows greater depression in freezing point 1 M Al(NO)$_3$ has higher i value (i=3) than 1 M glucose (i=1) and we know that $\Delta T_f = iK_f\, m$	1 1
	b. $\pi = (n_2/V)\, RT$ Given π = 2.64 atm	½

Let $V_1 = V$

$V_2 = 5V$ (On dilution by 5 times)

$$\frac{\pi 1}{\pi 2} = \frac{(n/V_1)}{(n/V_2)}$$

$$\frac{2.64}{\pi 2} = \frac{(n/V)}{(n/5V)}$$

$\pi 2 = 0.528$ atm

Osmotic pressure is directly proportional to temperature.

The osmotic pressure of cane sugar can be decreased by decreasing the temperature.

OR

a. While giving intravenous injection to the patients , utmost care of concentration of the solution is to be taken . The solution must have same concentration as that of blood cells .
If the solution becomes more concentrated than the concentration of the blood it will lead to the shrinking of blood cells and fluid will start flowing out because of endosmosis.
If concentration is less concentrated than the concentration of the blood it will lead to swelling of blood cells will take place. Both situations are life-threatening.

b. $2C_6H_5OH \longrightarrow (C_6H_5OH)_2$

Initial concentration :   C   0

Final concentration   C (1-α)   Cα/n, where α is degree of association .
Experimentally, phenol is 73 % associated .
Hence α = 0.73 .
Relation between i (vant hoff factor) and α is given as :
α=(1-i)/ (1-n) , where n for phenol = ½ as phenol acts as dimer , association is taking place

Substituting the values :
0.73=(1-i)/(-0.5)

11

i=1- 0.73/2
i= 0.635   ½

Depression in freezing point can be calculated as:
$\Delta T_f = iK_f m$
$= iK_f (w_b / M_b \times w_a)$
K_f = 5.12 K Kg/mol, w_b = 2 x 10^{-2} kg = 20 g, w_a = 1 kg M_b = 94   1
ΔT_f =(0.635 X 5.12 X 20 / (94)   ½
= 0.691 K

_____

Sample Question Paper
Class XII
044 Biology (2024-25)

Maximum Marks: 70   **Time: 3 hours**

General Instructions:

(i)   All questions are compulsory.
(ii) The question paper has five sections and 33 questions.
(iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
(v)   Wherever necessary, neat and properly labeled diagrams should be drawn.

	Section – A Q. No. 1 to 12 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.	
Q. No	**Question**	**Marks**
1	Signals for parturition in human female originate from A. Fully developed foetus only B. Both placenta as well as fully developed foetus C. Placenta only D. Oxytocin released from maternal pituitary	1
2	To produce 1600 seeds, the number of meiotic divisions required will be A. 2400 B. 2000 C. 1600 D. 1800	1
3	A sample of normal double-stranded DNA was found to have thymine content of 27%. What will be the expected proportion of guanine in this strand? A. 23% B. 32% C. 36% D. 73%	1

4	Observe the schematic diagram that depicts a small section of nucleic acid. The bases in two strands are paired through hydrogen bonds that are shown by the dark lines. Identify the correct sequence of nucleotide in the 5'-3' direction.	1
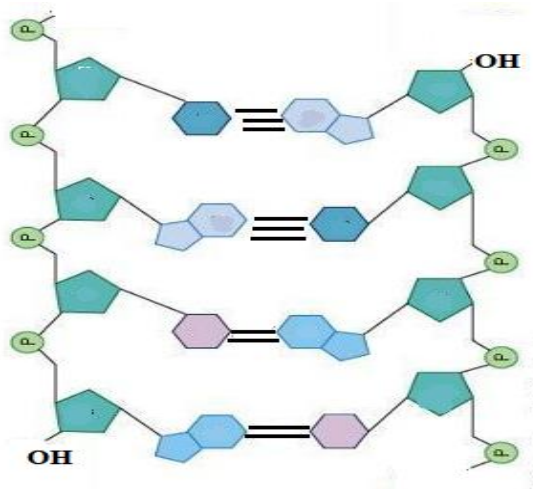
A. GCAT
B. CGTA
C. TAGC
D. ATCG

- - - - - - - - - - - - - - - - - -

For Visual Impaired Students

E. coli has 4.6 X 10 [6] base pairs and completes the process of replication in 18 minutes, then the average rate of polymerization is approximately

A. 2000 bp/s
B. 4000 bp/s
C. 3000 bp/s
D. 1000 bp/s

5	Suresh and Rajesh have defective haemoglobin due to genetic disorders. In Suresh, the problem is qualitative as he is having incorrectly functioning globin molecules while in Rajesh the problem is quantitative as he is having very few globin molecules. Identify the disorder they are suffering from.	1

	Suresh	Rajesh
A	Thalassemia - Autosomal Dominant blood disorder	Sickle Cell Anaemia - Autosomal linked Recessive trait
B	Sickle Cell Anaemia - Autosomal linked Dominant trait	Thalassemia - Autosomal Recessive blood disorder
C	Sickle Cell Anaemia – Autosomal linked Recessive trait	Thalassemia – Autosomal Recessive blood disorder
D	Thalassemia - Autosomal Dominant blood disorder	Sickle Cell Anaemia - Autosomal linked Dominant trait

6	In *E.coli*, the lac operon gets switched on when lactose is A. present in the medium and it binds to the repressor. B. not present in the medium and the repressor binds to the operator. C. not present in the medium and RNA polymerase binds to the operator. D. Active lactose present in the medium binds to RNA polymerase.	1
7	Which of the following features shows the mechanism of sex determination in honey-bee? (i) An offspring formed from the union of a sperm and egg develops as a female. (ii) Males have half the number of chromosomes than that of female. (iii) The males are haploid having 32 chromosomes. (iv) All workers and males are diploid having 16 chromosomes A. (i) and (ii) B. (ii) and (iii) C. (i) and (iv) D. (ii) and (iv)	1
8	The following diagram shows a fragment of DNA which is going to be transcribed, the upper strand with polarity 3' to 5' is the template strand: 3´ ATTGCC 5´ 5´ TAACGG 3´ After transcription the mRNA can be represented by: A. 5´ AUUGCC 3´ B. 5´ AUUGCC 3' C. 5´ UAACGG 3´ D. 5´ GGCAAU 3´	1
9	Idli – dosa dough rises due to production of which of the following gas? A. CO B. CO_2 C. NO D. NO_2	1
10	Adaptive radiation leads to which of the following? A. Increased competition among species B. Decreased speciation rates C. Limited morphological diversity among species D. Rapid divergence of traits among populations inhabiting a given geographical area.	1

11	Eco R1 cuts the DNA between bases G and A only when the sequence of GAATTC is present. The number of nucleotides present in the resultant sticky ends that will be formed in each of the two strands of DNA after this enzyme cuts the DNA will be:	1

	Vector DNA	Foreign DNA
A.	1 & 5	5 & 1
B.	2 & 4	4 & 2
C.	2 & 5	5 & 2
D.	3 & 4	4 & 3

12	During the secondary treatment of sewage, which of the following change in the effluent occur due to flocs? A. Reduction in BOD B. Increase in BOD C. Decrease in DO D. No change in DO or BOD	1

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:
  A. Both A and R are true and R is the correct explanation of A.
  B. Both A and R are true and R is not the correct explanation of A.
  C. A is true but R is false.
  D. A is False but R is true.

13	**Assertion** (A): Cells of tapetum have more than one nucleus. **Reason** (R): They undergo meiosis without cytokinesis.	1
14	**Assertion** (A): Deoxyribonucleoside triphosphates serve dual purposes. **Reason** (R): They act as proof readers and provide energy.	1
15	**Assertion** (A): A floating cover placed over the slurry in a biogas plant keeps on rising. **Reason** (R): This cover keeps on rising due to the gas produced in the tank by the microbial activity.	1
16	**Assertion** (A): DNA fragments can be isolated by Gel electrophoresis on the basis of their size. **Reason** (R): The larger the fragment size, the faster it moves.	1

Section - B		

17	*Attempt either option A or B.*
	A.
	  (i) A blood test reported negative for hCG.
	       What does negative hCG imply? Name the tissue which produces hCG?
		2

		(ii)	If a blood test reported positive for hCG in a person, then which other hormones would also be secreted by the tissue secreting hCG?
			OR
	B.		
		(i)	The human male ejaculates about 200 to 300 million sperm during a coitus, however the ovum is fertilized by only one sperm. How does the ovum block the entry of additional sperms?
		(ii)	All copulations will not lead to fertilization. Why?

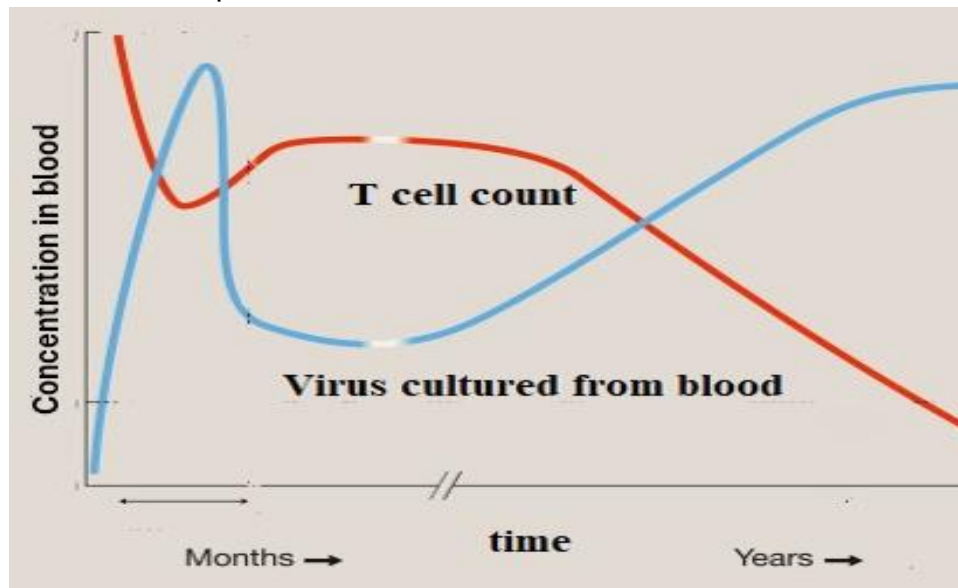|		
18	*Attempt either option A or B.* A. The schematic representation given below shows a DNA strand and two types of mutations in the DNA strand. (i) Identify the type of mutation exhibited in I and II. (ii) Which of the above mutation is more harmful? Give reason. **OR** B. Given below is a schematic representation of a mRNA strand (i) In the above sequence identify the translational unit in mRNA. (ii) Where are UTRs found and what is their significance?	2

| 19	Given below is the relationship between the HIV levels in the blood and helper T cell count in a person detected with AIDS. Study the relationship and answer the questions that follow.	2
	A. What kind of relationship is observed in the virus levels and the immune response after some days of the initial infection? B. Does it completely clear the virus from the body permanently? Give reason for your answer. - - - - - - - - - - - - - - - - - - *For visually impaired students.* Write the sequence of events that occur when a retrovirus enters a human being, causing reduction in helper T-cells.	
20	A culture plate of *Lactobacillus* shows blue-coloured colonies and colourless colonies. Explain the principle involved in the formation of such variance in the colour of colonies.	2
21	*Attempt either option A or B.* A. (i) It was estimated that if an evergreen forest has a GPP of 400 $J/m^2/day$ and 150 $J/m^2/day$ worth of carbon dioxide flows out of that forest, what is the NPP in that forest? (ii) Explain why pyramids of energy must always be upright. **OR** B. (i) Assume that, GPP Forest A = GPP Forest B = GPP Forest C, If Forest A has NPP = 1254 $J/m^2/day$; Forest B, NPP =2157 $J/m^2/day$; and Forest C, NPP = 779 $J/m^2/day$, which one of these forests has maximum energy loss by respiration? Give reason. (ii) Draw an ecological pyramid of number of the following food chains a. Grass — Animal —Fleas on the host animal b. Tree — Insects — Woodpecker	2

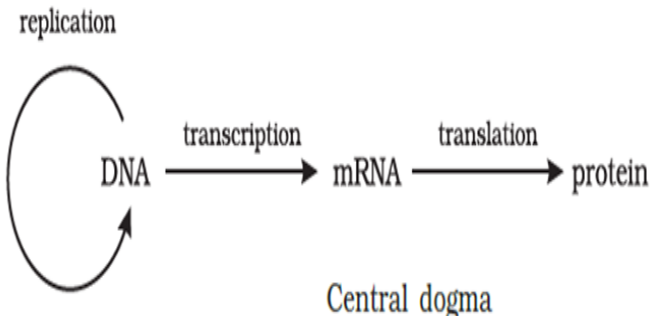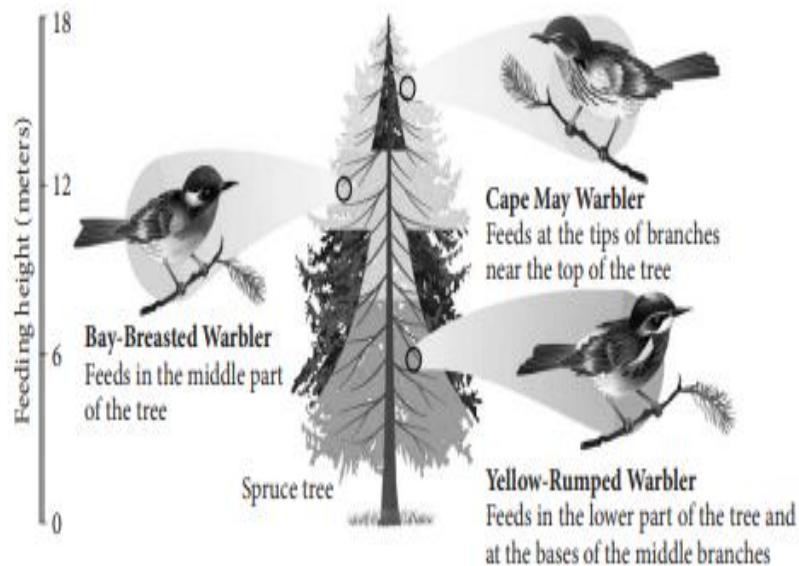|	**Section - C**	

22	The image below shows two germinated seeds X and Y which belong to the same species. Seed X is produced by apomixis whereas seed Y is a product of sexual reproduction.
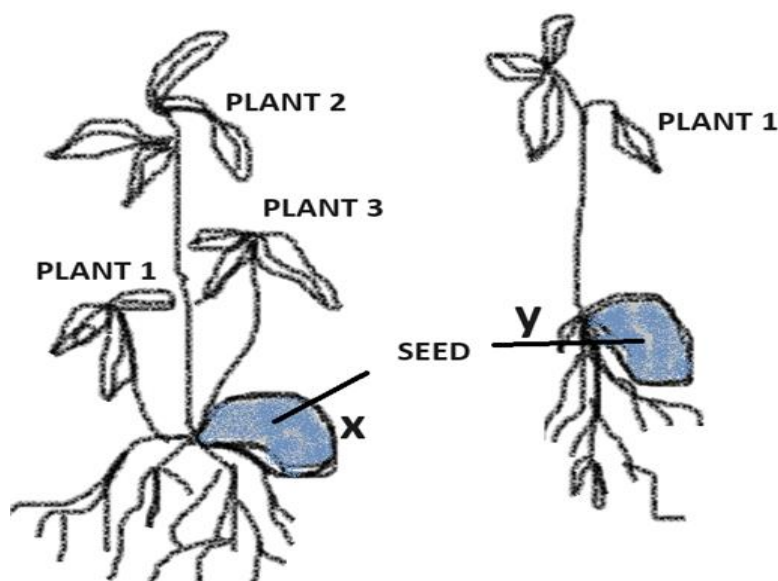	
	A. Write the number of embryo(s), embryo sac(s) and ovules in the ovary of seed X.
	B. How multiples embryos are formed in citrus fruits?
	C. What advantage will plants developed from seed Y have over seed X?
	
	- - - - - - - - - - - - - - - - - -
	
	For visually impaired students
	
	Each Mango fruit contains one seed. Two mango seeds, X and Y were sown in the soil. From Seed X, 3 plant saplings germinated but from seed Y only 1 plant sapling germinated.
	
	A. For seed X which is apomictic, calculate the number of:
	   i) Embryo(s)
	   ii) Embryo sac(s)
	  iii) Ovules in this seed's ovary
	B. How multiples embryos are formed in citrus fruits?
	C. What advantage will plants developed from seed Y have over seed X?
		3

23	Name the place in human ovary where the first meiotic division is completed during oogenesis. What are the products of this division? Give the chromosome number of each type of cells involved in the process.	3

| 24	The schematic representation given below shows the concept of Central Dogma.	3
	A. During the process of replication and transcription the pairing of nitrogenous bases is not similar. Explain. **B.** How is the above process modified in a retrovirus? Name the process. **C.** Justify why during the process of transcription only a segment of DNA is copied into RNA.	
	- - - - - - - - - - - - - - - - -	
	For visually impaired students	
	Central Dogma explains the process of DNA transcription and translation. From DNA mRNA is transcribed and then mRNA is translated into a polypeptide.	
	A. During the process of replication and transcription the pairing of nitrogen bases is not similar. Explain. **B.** How is the above process modified in viruses? Name the process. **C.** Justify why during the process of transcription only a segment of DNA is copied into RNA.	
25	Describe the steps involved in Southern blot hybridization using radiolabeled VNTR as a probe.	3
26	Bio-fertilisers are organisms that enrich the nutrient quality in the soil. Explain the role of three main sources of bio-fertilisers.	3
27	Explain how PCR technique can be used for amplification of a small amount of DNA template.	3
28	**A.** Diagram given below depicts different species of Warbler birds feeding on different regions on a Spruce tree. Explain the mechanism which helps them to co-exist.	3

Bay-Breasted Warbler
Feeds in the middle part of the tree

Cape May Warbler
Feeds at the tips of branches near the top of the tree

Yellow-Rumped Warbler
Feeds in the lower part of the tree and at the bases of the middle branches

Spruce tree

Feeding height (meters)

B. What does Gause's exclusion principle state? Does it apply in the case shown above? Explain.

- - - - - - - - - - - - - - - - -

For visually impaired students

A. Name and explain the mechanism where two species competing for the same resource co-exist.
B. What does Gause's exclusion principle state? Does it apply in the above situation? Explain.

Section - D

29	Assuming that within a population of beetles where Hardy Weinberg conditions are met, the colour black (B) is dominant over the colour red (b). 40% of all beetles are red (bb).
	Given this information, answer the questions below:
	  A. What is the frequency of red beetles? (1)
	  B. Calculate is the percentage of beetles in the population that are heterozygous. (2)
	
	  Attempt either subpart C or D.
	
	  C. What is the frequency of homozygous dominant individuals? (1)
	  OR
	  D. Assuming that Hardy Wienberg conditions are met in the beetle population consisting of 1500 beetles. How many beetles would you expect to be black and red in colour respectively? (1)
		4

30	Given below is the pattern of temperature in a person suffering from a non-viral disease transmitted by mosquitoes. Study the graph and answer the questions that follow:	4
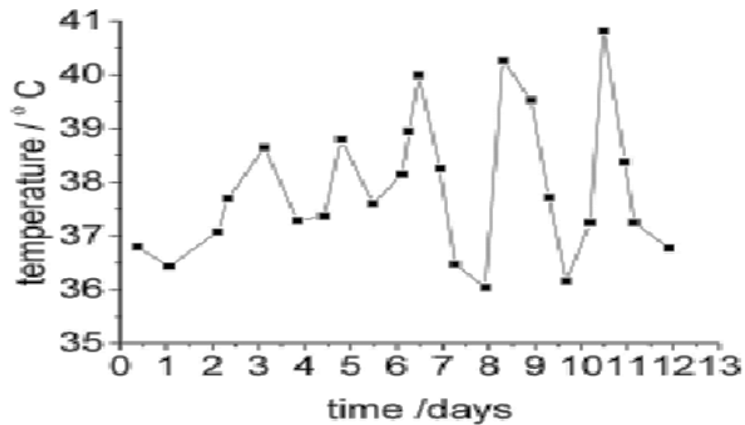
A. Explain the factor(s) responsible for this pattern of temperature.   (1)
B. How does this pathogen multiply in the human body?   (2)

   Attempt either subpart C or D.

C. How is this infection transmitted to humans?   (1)
     OR
D. Which stages of the life cycle of this pathogen are completed in the mosquito's gut?   (1)

- - - - - - - - - - - - - - - - - -

For visually impaired students

A. A non-viral disease that is transmitted by mosquitoes causes recurring fever in an infected person. Explain giving reason(s).   (1)
B. How does this pathogen multiply in the human body?   (2)

   Attempt either subpart C or D.

C. How is this infection transmitted to humans?   (1)
     OR
D. Which stages of the life cycle of this pathogen are completed in the mosquito's gut?   (1)


Section - E

| 31 | *Attempt either option A or B.*

A. Cryptorchidism is a condition in which the testes fail to descend into the scrotum. It can also lead to compromised Sertoli cell function and has an impact on Leydig cell function.
 (i) Identify at least 3 parameters of male fertility which get affected due to cryptorchidism.
 (ii) Which process will be affected if mature spermatids are not released from Sertoli cells?
 (iii) Name and explain one assisted reproductive technology (ART process) in which the sperm/semen is used to assist fertilization.
 (iv) Name and explain the assisted reproductive technology that should be used to complete the development of embryos I and II shown in the figure given below. | 5 |

blastomeres

Embryo I   Embryo II

- - - - - - - - - - - - - - - - - -
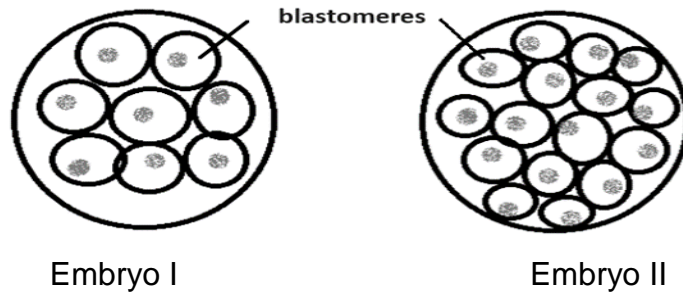
For visually impaired students

(iv) An infertile couple decided to use ART to conceive. After IVF they decided for Embryo transfer of the following 2 embryos. Embryo 1 consisted of 8 blastomeres and Embryo 2 consisted of 16 blastomeres. Name and explain the techniques they should deploy to complete further development of the given embryos.

OR

B.
(i) Explain the significance of each of the following features present in plants given below:
   a) In rose-bay plant the stamens ripen before the stigma.
   b) In certain species of primrose, the flowers have short stamen and long style.
   c) The bisexual flower of mustard exhibits rejection of self-pollen grain.
(ii) Explain how autogamy is prevented in castor and papaya plant respectively.

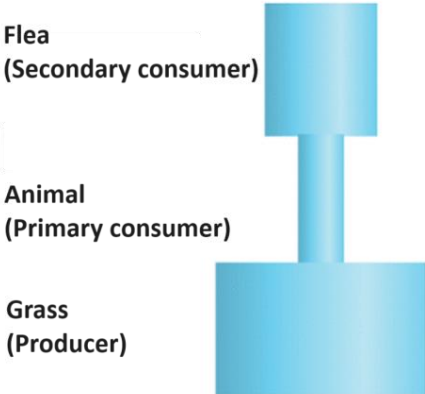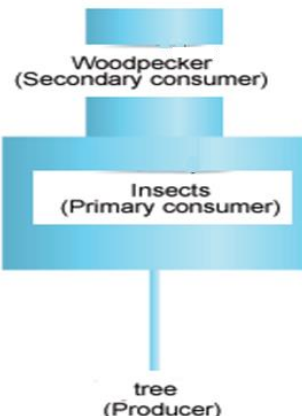| 32	*Attempt either option A or B.* A. Explain how advent of biotechnology has helped in preventing infestation by nematodes and thereby increasing crop yield. **OR** B. In the future, genetic therapies may be used to prevent, treat, or cure certain inherited disorders in humans. Justify the statement with a suitable example.	5
33	*Attempt either option A or B.* A. (i) Why is there a need to conserve biodiversity? (Any two reasons) (ii) Name and explain any two causes that are responsible for the loss of biodiversity. **OR** B. (i) Name the two types of desirable approaches to conserve biodiversity? Explain with examples bringing out the difference between the two types. (ii) State the features of a stable biological community?	5

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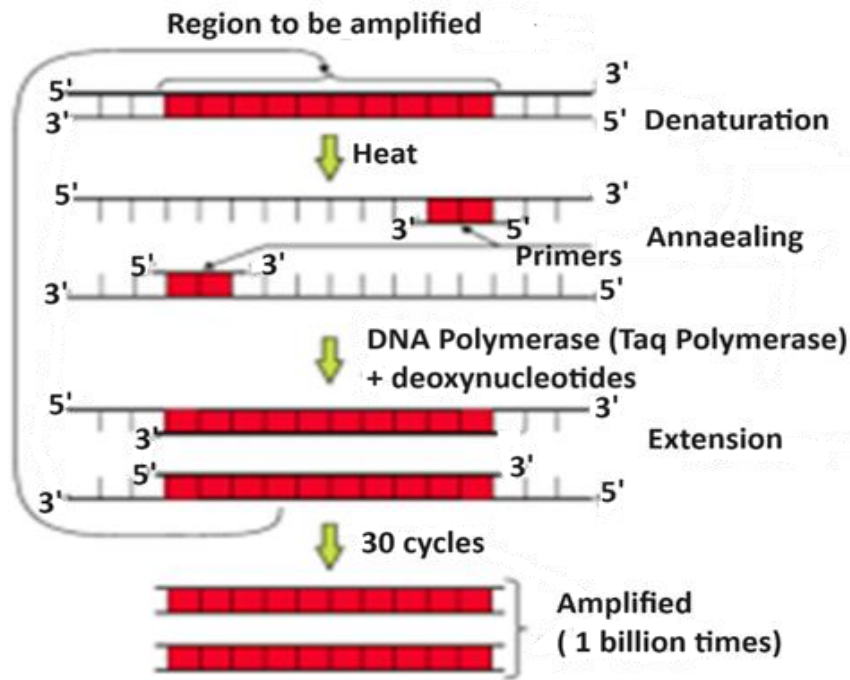| Q. No.	Answer	Marks
	Section - A	
1	B. Both placenta as well as fully developed foetus.	1
2	B. 2000 Formation of one seed requires fertilsation between one pollen grain and one egg. To produce 1600 seeds, 1600 pollen grains and 1600 eggs will be required. Each microspore mother cell results in the formation of 4 pollen grains after one cycle of meiotic division. So, 400 meiotic divisions will result in the production of 1600 pollen grains. One megaspore mother cell after one cycle of meiotic division results in the formation of 1 egg; so, 1600 meiotic divisions will take place to form 1600 eggs. Thus, total number of meiotic divisions required for the formation of 1600 seeds will be 400 + 1600 =2000.	1
3	A. 23% According to Chargaff's rules, in DNA, A =T and G=C; Thus, A +T+G+C =100 Given T = 27% so A=T =27% Thus A+T = 27 +27 =54% Thus, G+C =100 – 54 = 46% Since G = C so G = 46/2 =23%	1
4	B. CGTA - - - - - - - - - - - - - - - - - *For Visual Impaired Students* B. 4000 bp/s It completes replication process in 18 minutes i.e. 18x 60 seconds. Rate of polymerization = 4.6×10^6 bp/ 18x 60 s = 460000/108 = 4259.1bp/s or approximately 4000 bp/sec Thus, the correct option is B.	1
5	C. Suresh Rajesh | Sickle Cell Anaemia – Autosomal linked Recessive trait	Thalassemia – Autosomal Recessive blood disorder		1
6	A. present in the medium and it binds to the repressor.	1
7	A. (i) and (ii)	1

8	C. 5´ UAACGG 3´	1
9	B. CO_2	1
10	D. Rapid divergence of traits among populations inhabiting a given geographical area.	1
11	A. 1& 5; 5 &1	1
12	A. Reduction in BOD	1

Question No. 13 to 16 consist of two statements – **Assertion** (A) and **Reason** (R).
Answer these questions selecting the appropriate option given below:
   A. Both A and R are true and R is the correct explanation of A.
   B. Both A and R are true and R is not the correct explanation of A.
   C. A is true but R is false.
   D. A is False but R is true.

13	C. A is true but R is false.	1
14	C. A is true but R is false.	1
15	A. Both A and R are true and R is correct explanation of A.	1
16	C. A is true but R is false.	1

Section - B		

17	*Student to attempt either option A or B.*
	A.
	   (i) Negative hCG implies no pregnancy (0.5); Placenta. (0.5)
	   (ii) Human placental lactogen (hPL), estrogen, progestogens, relaxin
	                                    (any two) (0.5 x 2 = 1)
	
	OR
	B.
	   (i) A sperm induces changes in the zona pellucida membrane on
	      contact, blocking entry of other sperms. (1)
	   (ii) Ovum and sperms should be transported simultaneously to the
	      ampullary region for fertilization. (1)
		2

18	*Student to attempt either option A or B.*
	
	  A.
	    (i) I is point mutation; II is Frame shift (1)
	    (ii) II as more codons are affected; (0.5)
	It is extremely likely to lead to large-scale changes to polypeptide length and chemical composition/ resulting in a non-functional protein that often disrupts the biochemical processes of a cell/Incorrect amino acids are inserted/ often premature termination occurs when a nonsense codon is read/ Frameshifts have very severe phenotypic effects. (any one) (0.5)
	OR
		2

	B.
	   (i) Translational unit in mRNA is the sequence of RNA that is flanked by the start codon (AUG) and the stop codon (UAA) and codes for a polypeptide/ AUG AUC UCG UAA. (1)
	   (ii) Untranslated regions (UTR). The UTRs are present at both 5' -end (before start codon) and at 3' -end (after stop codon). They are required for an efficient translation process. (1)	

19	A. As the adaptive immune response gears up, there is a reciprocal relationship between virus levels in the blood and helper T lymphocytes levels. As the level of helper T levels rises, the virus levels decline. (1) B. Several years later, if untreated, HIV patient will lose the adaptive immune response, including the ability to make antibodies, as gradually the HIV enters the helper T lymphocytes leading to a progressive decrease in the number of helper T lymphocytes. (1) - - - - - - - - - - - - - - - - - - *For visually impaired students.* After getting into the body of the person, the virus enters into macrophages where the RNA genome of the virus replicates to form viral DNA with the help of the enzyme reverse transcriptase. The viral DNA gets incorporated into the host cell's DNA and directs the infected cells to produce virus particles. Macrophages continue to produce virus particles; in this way they act like HIV factory. (1) Simultaneously, HIV enters into helper T-lymphocytes (T_H), replicates and produces progeny viruses. The progeny virus released in blood attack other T lymphocytes leading to a progressive decrease in the number of helper T-lymphocytes in the body of the infected person. Due to decrease in the number of helper T lymphocytes, the person becomes immuno-deficient. (1)	2
20	• The variation in colour of colonies is due to the principle of insertional inactivation. (0.5) • In this, a recombinant DNA is inserted within the coding sequence of an enzyme, β-galactosidase. This results into inactivation of the enzyme, which is referred to as insertional inactivation. (0.5) • The presence of a chromogenic substrate gives blue-coloured colonies if the plasmid in the bacteria does not have an insert. (0.5) • Presence of insert results into insertional inactivation of the β -galactosidase and the colonies do not produce any colour, these are identified as recombinant colonies. (0.5)	2

21	*Student to attempt either option A or B.*	2

A.

(i) NPP = GPP – R;
   Given GPP = 400 J/m^2/day
   R = 150 J/m^2/day

   NPP = 400 J/m^2/day – 150 J/m^2/day = 250 J/m^2/day   (1)

(ii) Pyramid of energy is always upright. As energy flows from one trophic level to the next trophic level some amount of energy is lost in each trophic level in the form of heat. Therefore, the pyramid of energy is always upright and can never be inverted.   (1)

OR

B.

(i) If GPP is equal, then we can manipulate the NPP equation and solve.
   - NPP = GPP – Respiration of plants;
   - Respiration of Plants = GPP – NPP.
   - This means that the smallest NPP corresponds to the largest respiration. That is forest C.   (1)

(ii)

(a)   (b)

(0.5)   (0.5)

Section – C

22	A. Seed X- 3 embryos; 1embryo sac; 1ovule; (0.5 x 3=1.5)	3

B. The nucellar cells grow mitotically and develop into the embryos by asexual reproduction.   (0.5)

C. The plants growing from seed X will have to share the resources/endosperm so there is a possibility of some plant being undernourished/; only one plant in seed Y will use the entire endosperm for its growth **or** as the plants of seed X are clones they will not show variation and may succumb to environmental stress;/ plants from seed Y will have genetic variation and so can show greater adaptability.   (1)

	- - - - - - - - - - - - - - - - - - _For visually impaired students_ A. Seed X- 3 embryos; 1embryo sac; 1ovule; (0.5 x 3=1.5) B. The nucellar cells grow mitotically and develop into the embryos by asexual reproduction. (0.5) C. The plants growing from seed X will have to share the resources/endosperm so there is a possibility of some plant being undernourished/; only one plant in seed Y will use the entire endosperm for its growth **or** as the plants of seed X are clones they will not show variation and may succumb to environmental stress;/ plants from seed Y will have genetic variation and so can show greater adaptablity. (1)	
23	• The first meiotic division is completed in the primary oocyte during oogenesis. (1) • Then primary oocyte undergoes first meiotic division to form a large haploid secondary oocyte and a tiny first polar body. (1) • The primary oocyte comprises of 46 chromosomes, whereas secondary oocyte and first polar body have 23 chromosomes each. (1)	3
24	A. During replication, Adenine pairs with thymine in DNA; during transcription, adenine pairs with uracil in RNA. (0.5+0.5) B. In retrovirus the nucleic acid is RNA and it is used to synthesize DNA; the process is called reverse transcription. (0.5+0.5) C. It is a highly energy-rich process/ or as per the need only the gene coding for a specific protein is transcribed. (1) - - - - - - - - - - - - - - - - - - _For visually impaired students_ A. During replication, Adenine pairs with thymine in DNA; during transcription, adenine pairs with uracil in RNA. (0.5+0.5) B. In retrovirus the nucleic acid is RNA and it is used to synthesize DNA; the process is called reverse transcription. (0.5+0.5) C. It is a highly energy-rich process/ or as per the need only the gene coding for a specific protein is transcribed. (1)	3
25	• isolation of DNA, • digestion of DNA by restriction endonucleases, • separation of DNA fragments by electrophoresis, • transferring (blotting) of separated DNA fragments to synthetic membranes, such as nitrocellulose or nylon, • hybridisation using labelled VNTR probe, and • detection of hybridised DNA fragments by autoradiography. (0.5 x 6 =3)	3

26	The main sources of biofertilizers are bacteria, fungi and cyanobacteria.	3
	- The nodules on the roots of leguminous plants are formed by the symbiotic association of Rhizobium. These bacteria fix atmospheric nitrogen into organic forms, which is used by the plant as a nutrient. Other bacteria can fix atmospheric nitrogen while free-living in the soil (examples *Azospirillum* and *Azotobacter*), thus enriching the nitrogen content of the soil. (1) - Fungi are also known to form symbiotic associations with plants (mycorrhiza). Many members of the genus Glomus form mycorrhiza. The fungal symbiont in these associations absorbs phosphorus from soil and passes it to the plant. Plants having such associations show other benefits also, such as resistance to root-borne pathogens, tolerance to salinity and drought, and an overall increase in plant growth and development. (1) - Cyanobacteria are autotrophic microbes widely distributed in aquatic and terrestrial environments many of which can fix atmospheric nitrogen, e.g. Anabaena, Nostoc, Oscillatoria, etc. In paddy fields, cyanobacteria serve as an important biofertiliser. Blue green algae also add organic matter to the soil and increase its fertility. (1)	
27	PCR stands for Polymerase Chain Reaction. In this reaction, multiple copies of the gene (or DNA) of interest are synthesised in vitro using two sets of primers (small chemically synthesised oligonucleotides that are complementary to the regions of DNA) and the enzyme DNA polymerase. The enzyme extends the primers using the nucleotides provided in the reaction and the genomic DNA as template. (1) If the process of replication of DNA is repeated many times, the segment of DNA can be amplified to approximately billion times, i.e., 1 billion copies are made. Such repeated amplification is achieved by the use of a thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*), which remains active during the high temperature induced denaturation of double stranded DNA. The amplified fragment if desired can now be used to ligate with a vector for further cloning. (1) Each cycle has three steps: (i) Denaturation, (ii) Annealing and (iii) Extensions. (1)	3

Region to be amplified

5' — 3'
3' — 5' Denaturation

⬇ Heat

5' — 3'
3' 5' Primers — Annaealing

5' 3'
3' — 5'

⬇ DNA Polymerase (Taq Polymerase) + deoxynucleotides

5' — 3'
3' — Extension
5' — 3'
3' — 5'

⬇ 30 cycles

Amplified
(1 billion times)

| 28 | A. | 3 |
| | • They are able to co-exist by mechanism of 'resource partitioning'.
• If two species compete for the same resource, they could avoid competition by choosing different foraging patterns.
• MacArthur showed that five closely related species of warblers living on the same tree were able to avoid competition and co-exist due to behavioural differences in their foraging activities.
B.
• Gause's 'Competitive Exclusion Principle' states that two closely related species competing for the same resources cannot co-exist indefinitely
• and the competitively inferior one will be eliminated eventually.
• No   (0.5 x 6=3)
- - - - - - - - - - - - - - - - - -
For visually impaired students

A.
• They are able to co-exist by mechanism of 'resource partitioning'.
• If two species compete for the same resource, they could avoid competition by choosing different foraging patterns.
• MacArthur showed that five closely related species of warblers living on the same tree were able to avoid competition and co-exist due to behavioural differences in their foraging activities.
B.
• Gause's 'Competitive Exclusion Principle' states that two closely related species competing for the same resources cannot co-exist | |

	indefinitely • and the competitively inferior one will be eliminated eventually. • No (0.5 x 6=3)	

Section – D

| 29 | A. Given is bb = q^2 = 0.4.
To determine q, which is the frequency of the recessive allele in the population, simply take the square root of q^2 which works out to be 0.632 (i.e. 0.632 x 0.632 = 0.4).
So, q = 0.63 (1)
B. As we know that p + q = 1,
then p must be 1 - 0.63 = 0.37. (1)
The percentage of beetles in the population that are heterozygous would be 2pq.
2 (0.37) (0.63) = 0.47 (1)

Student to attempt either subpart C or D.

C. Given is BB= p^2 = $(0.37)^2$= 0.14 (1)
   OR
D. As, 1500 is the total population
  40% is red population,
hence the number of beetles with red colour will be
1500x0.4= 600 (0.5)
If total population is 1500 and red is 600 then black would be 1500-600=900 (0.5) | 4 |
| 30 | A. The rupture of RBCs associated with the release of toxic substance haemozoin is responsible for the chills and fever/recurring every 3 - 4 days. (1)
B.
- The parasite reproduces asexually in liver cells, bursting the cell and releasing into the blood. (1)
- Parasite further reproduces asexually in red blood cells. Released parasite infects new red blood cells. Sexual stages (gametocytes) develop in red blood cells. (1)

Student to attempt either subpart C or D.

C. The infection is caused by the bite of the female *Anopheles* mosquito which introduces the sporozoites in the human body. (1)
   OR
D. Fertilisation and development take place in the mosquito's gut. (1)

- - - - - - - - - - - - - - - - - - | 4 |

	For visually impaired students	
	A. The rupture of RBCs associated with the release of toxic substance haemozoin is responsible for the chills and fever/recurring every 3-4 days. (1)	
	B.	
	- The parasite reproduces asexually in liver cells, bursting the cell and releasing into the blood. (1)	
	- Parasite further reproduces asexually in red blood cells. Released parasite infects new red blood cells. Sexual stages (gametocytes) develop in red blood cells. (1)	
	Student to attempt either subpart C or D.	
	C. The infection is caused by the bite of the female *Anopheles* mosquito which introduces the sporozoites in the human body. (1)	
	OR	
	D. Fertilisation and development take place in the mosquito's gut. (1)	
	Section – E	
31	*Student to attempt either option A or B.*	5
	A.	
	(i)	
	• Sperm count decreases, spermatogenesis is impaired;	
	• Spermatids do not get nourishment to develop into spermatozoa thus spermiogenesis will be affected;	
	• Leydig cells synthesize and secrete androgen hormones (like testosterone) so secretion of androgens will be affected. (0.5 x 3 = 1.5)	
	(ii) Spremiation (0.5)	
	(iii) Artificial insemination (AI) technique. In this technique, the semen collected either from the husband or a healthy donor is artificially introduced either into the vagina or into the uterus (IUI – intra – uterine insemination) of the female.	
	OR	
	Intra cytoplasmic sperm injection (ICSI) is another specialised procedure to form an embryo in the laboratory in which a sperm is directly injected into the ovum. (1)	
	(iv) The zygote or early embryos (with upto 8 blastomeres) could be transferred into the fallopian tube (ZIFT–zygote intra fallopian transfer); embryos with more than 8 blastomeres, into the uterus (IUT – intra uterine transfer), to complete its further development. (1+1)	
	- - - - - - - - - - - - - - - - -	

	For visually impaired students	

	(iv) The zygote or early embryos (with upto 8 blastomeres) could then be transferred into the fallopian tube (ZIFT–zygote intra fallopian transfer); embryos with more than 8 blastomeres, into the uterus (IUT – intra uterine transfer), to complete its further development.
	
	(1+1+0.5 mark for ZIFT with full form)
	OR
	B.
	   (I)
	      (i) In rose – bay plant, the time of maturation of stamen and pistil is not same, the pollen will not be able to germinate on the stigma. This prevents autogamy in rose-bay. (1)
	      (ii) Different position and incompatible placement of the reproductive structure prevent successful pollination and thus autogamy in primrose. (1)
	      (iii) Pollen pistil interaction for same species is not possible; this is a genetic mechanism which prevent the pollen grain from forming pollen tube on the pistil of the same flower. (1)
	   (II) The male and female flowers are present in the same plant but are not in proximity preventing self-fertilization in castor. In papaya, the male flower and female flowers are in different plants, it prevents autogamy. (2)	

32	*Student to attempt either option A or B.* A. - Several nematodes parasitize a wide variety of plants and animals including human beings. - A nematode *Meloidegyne incognitia* infects the roots of tobacco plants and causes a great reduction in yield. - A novel strategy was adopted to prevent this infestation which was based on the process of RNA interference (RNAi). - RNAi takes place in all eukaryotic organisms as a method of cellular defense. - This method involves silencing of a specific mRNA due to a complementary dsRNA molecule that binds to and prevents translation of the mRNA (silencing). - The source of this complementary RNA could be from an infection by viruses having RNA genomes or mobile genetic elements (transposons) that replicate via an RNA intermediate. - Using Agrobacterium vectors, nematode-specific genes were introduced into the host plant. - The introduction of DNA was such that it produced both sense and anti-sense RNA in the host cells. - These two RNA's being complementary to each other formed a	5

double stranded (dsRNA) that initiated RNAi and thus, silenced the specific mRNA of the nematode.

- The consequence was that the parasite could not survive in a transgenic host expressing specific interfering RNA. The transgenic plant therefore got itself protected from the parasite. (0.5 x 10 =5)

OR

B.

- Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat a disease.
- Correction of a genetic defect involves delivery of a normal gene into the individual or embryo to take over the function of and compensate for the non-functional gene.
- The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function.
- The disorder is caused due to the deletion of the gene for adenosine deaminase.
- In some children ADA deficiency can be cured by bone marrow transplantation; in others it can be treated by enzyme replacement therapy, in which functional ADA is given to the patient by injection.
- But the problem with both of these approaches is that they are not completely curative.
- As a first step towards gene therapy, lymphocytes from the blood of the patient are grown in a culture outside the body.
- A functional ADA cDNA (using a retroviral vector) is then introduced into these lymphocytes, which are subsequently returned to the patient.
- However, as these cells are not immortal, the patient requires periodic infusion of such genetically engineered lymphocytes.
- However, if the gene isolate from marrow cells producing ADA is introduced into cells at early embryonic stages, it could be a permanent cure. (0.5 x 10 =5)

| 33 | *Student to attempt either option A or B.*
A.
(i) There are three main reasons for conserving the biodiversity which have been classified into the following categories: (Any two reasons)
- Narrowly utilitarian arguments. Human beings derive direct economic benefits from nature, like food, firewood, fibre, construction material, industrial products (resins, gums, dyes, tannins, etc.) and medicinally important products.
- Broadly utilitarian arguments. Biodiversity plays a major role in maintaining and sustaining supply of goods and services from | 5 |

various species as well as ecological systems. The different ecological services provided are:

➢ Amazon forest is estimated to contribute 20 per cent of the total oxygen in the atmosphere on earth.

➢ Pollinators like bee, bumble bees, birds and bats pollinate plants to form fruits and seeds.

➢ Aesthetic pleasures like bird watching, spring flowers in full bloom, walking through the thick forest, waking up to a bulbul's song, etc. are some other benefits of the ecosystem.

- Ethical reasons there are thousands of plants, animals and microbes on this earth which are not useless. Everyone has some intrinsic value even if it is not of any economic value to us. It is, therefore, our moral duty to ensure well-being of all the living creatures for the utilisation of future generations.   (1+1)

(ii) There are four major causes of biodiversity loss. These are also known as 'The Evil Quartet'.   (Any two Ways) (1.5 +1.5)

- Habitat loss and fragmentation Destruction of habitat is the primary cause of extinction of species. When large-sized habitats are broken or fragmented due to human settlements, building of roads, digging of canals, etc., the population of animals requiring large territories and some animals with migratory habitats declines.

- Over-exploitation When biological system is over-exploited by man for the natural resources, it results in degradation and extinction of the resources. For example, Stellar's sea cow, passenger pigeon and many marine fishes.

- Alien (exotic) species invasions Some alien (exotic) species when introduced unintentionally or deliberately, become invasive and cause harmful impact, resulting in extinction of the indigenous species. Nile perch, a large predator fish when introduced in Lake Victoria (East Africa) caused the extinction of an ecologically unique species of Cichlid fish in the lake.

- Co-extinctions When a species becomes extinct, the plant and animal species associated with it in an obligatory manner, also become extinct. For example, if the host fish species becomes

extinct, all those parasites exclusively dependent on it, will also become extinct

OR

B.
(i)

S. No.	In situ conservation	Ex situ conservation
(i)	It is conservation and protection of biodiversity in its natural habitat.	It is conservation of selected threatened plant and animal species in places outside their natural habitat.
(ii)	Population is conserved in the surroundings where they have developed their distinctive features.	Population is conserved under simulated conditions that closely resemble their natural habitats.
(iii)	e.g., national parks, biosphere reserves, wildlife sanctuaries, etc.	e.g., botanical gardens, zoological parks, wildlife safari, gene banks, etc.

(2)

(ii) A stable community should not show too much variation in productivity from year to year; it must be either resistant or resilient to occasional disturbances (natural or man-made), and it must also be resistant to invasions by alien species. (3)

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SAMPLE QUESTION PAPER (2024 - 25)

CLASS- XII

SUBJECT: Mathematics (041)

Time: 3 Hours   **Maximum Marks: 80**

General Instructions:

Read the following instructions very carefully and strictly follow them:

(i) This Question paper contains **38** questions. **All** questions are **compulsory.**

(ii) This Question paper is divided into **five** Sections - **A, B, C, D** and **E.**

(iii) In **Section A**, Questions no. **1** to **18** are **multiple choice questions (MCQs)** and Questions no. **19** and **20** are **Assertion-Reason based** questions of **1 mark each**.

(iv) In **Section B,** Questions no. **21** to **25** are **Very Short Answer (VSA)-type** questions, carrying **2 marks each**.

(v) In **Section C,** Questions no. **26** to **31** are **Short Answer (SA)-type** questions, carrying **3 marks each**.

(vi) In **Section D,** Questions no. **32** to **35** are **Long Answer (LA)-type** questions, carrying **5 marks each**.

(vii) In **Section E,** Questions no. **36** to **38** are **Case study-based questions,** carrying **4 marks each.**

(viii) There is no overall choice. However, an internal choice has been provided in 2 questions in Section B, 3 questions in Section C, 2 questions in Section D and one subpart each in 2 questions of Section E.

(ix) Use of calculators is **not** allowed.

SECTION-A $\left[1 \times 20 = 20\right]$

(This section comprises of multiple choice questions (MCQs) of 1 mark each)

Select the correct option (Question 1 - Question 18):

Q.1. If for a square matrix A, $A.(adjA) = \begin{bmatrix} 2025 & 0 & 0 \\ 0 & 2025 & 0 \\ 0 & 0 & 2025 \end{bmatrix}$, then the value of $|A| + |adj\ A|$ is equal to:

(A) 1 (B) $2025 + 1$ (C) $(2025)^2 + 45$ (D) $2025 + (2025)^2$

Q.2. Assume X, Y, Z, W and P are matrices of order $2 \times n,\ 3 \times k,\ 2 \times p,\ n \times 3$ and $p \times k,$ respectively. Then the restriction on n, k and p so that $PY + WY$ will be defined are:

(A) $k = 3, p = n$ (B) k **is arbitrary,** $p = 2$

(C) p **is arbitrary,** $k = 3$ (D) $k = 2, p = 3$

Q.3. The interval in which the function f defined by $f(x) = e^x$ is strictly increasing, is

(A) $[1, \infty)$ (B) $(-\infty, 0)$ (C) $(-\infty, \infty)$ (D) $(0, \infty)$

Q.4. If *A* and *B* are non-singular matrices of same order with $det(A) = 5$, then $det(B^{-1}AB)^2$ is equal to

(A) 5 (B) 5^2 (C) 5^4 (D) 5^5

Q.5. The value of 'n', such that the differential equation $x^n \frac{dy}{dx} = y(logy - logx + 1)$;

(**where** $x, y \in R^+$) is homogeneous, is

(A) 0 (B) 1 (C) 2 (D) 3

Q.6. If the points (x_1, y_1), (x_2, y_2) and $(x_1 + x_2, y_1 + y_2)$ are collinear, then $x_1 y_2$ is equal to

(A) $x_2 y_1$ (B) $x_1 y_1$ (C) $x_2 y_2$ (D) $x_1 x_2$

Q.7. If $A = \begin{bmatrix} 0 & 1 & c \\ -1 & a & -b \\ 2 & 3 & 0 \end{bmatrix}$ is a skew-symmetric matrix then the value of $a+b+c =$

(A) 1 (B) 2 (C) 3 (D) 4

Q.8. For any two events A and B, if $P(\overline{A}) = \frac{1}{2}, P(\overline{B}) = \frac{2}{3}$ and $P(A \cap B) = \frac{1}{4}$, then $P(\overline{A}/\overline{B})$ equals:

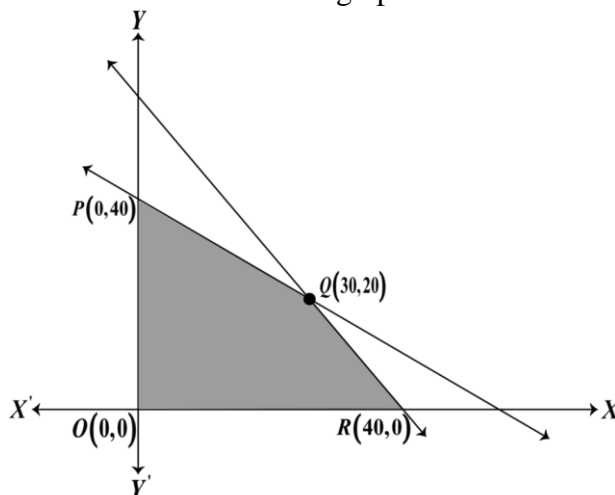(A) $\frac{3}{8}$ (B) $\frac{8}{9}$ (C) $\frac{5}{8}$ (D) $\frac{1}{4}$

Q.9. The value of α if the angle between $\vec{p} = 2\alpha^2\hat{i} - 3\alpha\hat{j} + \hat{k}$ and $\vec{q} = \hat{i} + \hat{j} + \alpha\hat{k}$ is obtuse, is

(A) $R - [0, 1]$ (B) $(0, 1)$ (C) $[0, \infty)$ (D) $[1, \infty)$

Q.10. If $|\vec{a}| = 3, |\vec{b}| = 4$ and $|\vec{a} + \vec{b}| = 5$, then $|\vec{a} - \vec{b}| =$

(A) 3 (B) 4 (C) 5 (D) 8

Q.11. For the linear programming problem (**LPP**), the objective function is $Z = 4x + 3y$ and the feasible region determined by a set of constraints is shown in the graph:

Which of the following statements is true?

(A) Maximum value of Z is at $R(40,0)$.

(B) Maximum value of Z is at $Q(30,20)$.

(C) Value of Z at $R(40,0)$ is less than the value at $P(0,40)$.

(D) The value of Z at $Q(30,20)$ is less than the value at $R(40,0)$.

Q.12. $\int \dfrac{dx}{x^3(1+x^4)^{\frac{1}{2}}}$ equals

(A) $-\dfrac{1}{2x^2}\sqrt{1+x^4}+c$

(B) $\dfrac{1}{2x}\sqrt{1+x^4}+c$

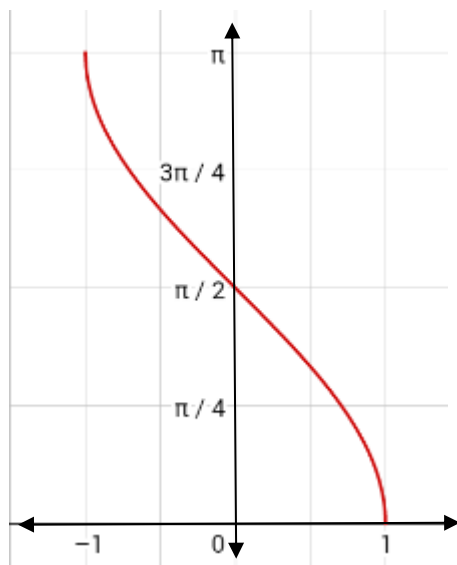(C) $-\dfrac{1}{4x}\sqrt{1+x^4}+c$

(D) $\dfrac{1}{4x^2}\sqrt{1+x^4}+c$

Q.13. $\int_0^{2\pi} cosec^7 x\, dx =$

(A) 0 (B) 1 (C) 4 (D) 2π

Q.14. What is the general solution of the differential equation $e^{y'} = x$?

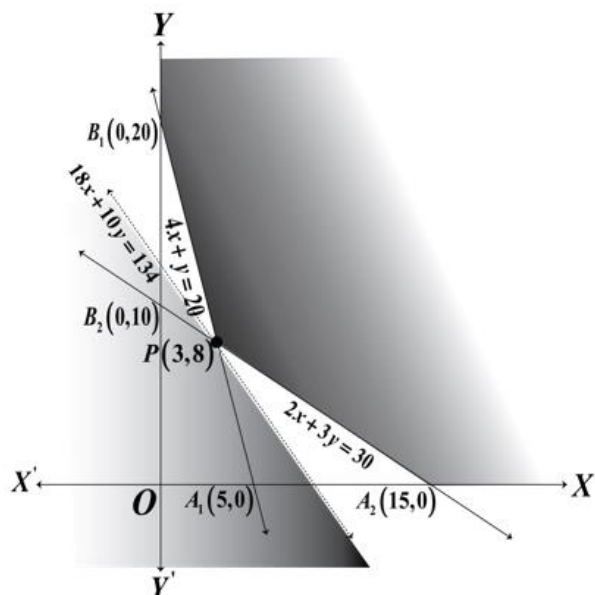(A) $y = x\log x + c$ (B) $y = x\log x - x + c$ (C) $y = x\log x + x + c$ (D) $y = x + c$

Q.15. The graph drawn below depicts

(A) $y = sin^{-1} x$ (B) $y = cos^{-1} x$ (C) $y = cosec^{-1} x$ (D) $y = cot^{-1} x$

Q.16. A linear programming problem (**LPP**) along with the graph of its constraints is shown below.

The corresponding objective function is: $Z = 18x + 10y$, which has to be minimized. The smallest value of the objective function Z is 134 and is obtained at the corner point $(3,8)$,

(Note: *The figure is not to scale.*)

The optimal solution of the above linear programming problem _____.

(A) does not exist as the feasible region is unbounded.

(B) does not exist as the inequality $18x + 10y < 134$ does not have any point in common with the feasible region.

(C) exists as the inequality $18x + 10y > 134$ has infinitely many points in common with the feasible region.

(D) exists as the inequality $18x + 10y < 134$ does not have any point in common with the feasible region.

Q.17. The function $f : R \rightarrow Z$ defined by $f(x) = [x]$; where $[.]$ denotes the greatest integer function, is

(A) Continuous at $x = 2.5$ but not differentiable at $x = 2.5$

(B) Not Continuous at $x = 2.5$ but differentiable at $x = 2.5$

(C) Not Continuous at $x = 2.5$ and not differentiable at $x = 2.5$

(D) Continuous as well as differentiable at $x = 2.5$

Q.18. A student observes an open-air Honeybee nest on the branch of a tree, whose plane figure is parabolic shape given by $x^2 = 4y$. Then the area (in sq units) of the region bounded by parabola $x^2 = 4y$ and the line $y = 4$ is

(A) $\dfrac{32}{3}$ (B) $\dfrac{64}{3}$ (C) $\dfrac{128}{3}$ (D) $\dfrac{256}{3}$

ASSERTION-REASON BASED QUESTIONS

(Question numbers 19 and 20 are Assertion-Reason based questions carrying 1 mark each. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the options (A), (B), (C) and (D) as given below.)

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).

(B) Both (A) and (R) are true but (R) is not the correct explanation of (A).

(C) (A) is true but (R) is false.

(D) (A) is false but (R) is true.

Q.19. Assertion (A): Consider the function defined as $f(x) = |x| + |x - 1|, \ x \in R$. Then $f(x)$

is not differentiable **at $x = 0$ and $x = 1$**.

Reason (R): Suppose f be defined and continuous on (a,b) and $c \in (a,b)$, then $f(x)$ is not

differentiable at $x = c$ if $\lim\limits_{h \to 0^-} \frac{f(c+h)-f(c)}{h} \neq \lim\limits_{h \to 0^+} \frac{f(c+h)-f(c)}{h}$.

Q.20. Assertion (A): The function $f: R - \left\{ (2n+1)\frac{\pi}{2} : n \in Z \right\} \to (-\infty, -1] \cup [1, \infty)$ defined by

$f(x) = \sec x$ is not one-one function in its domain.

Reason (R): The line $y = 2$ meets the graph of the function at more than one point.

<div align="center">

SECTION B $\qquad\qquad \left[2 \times 5 = 10 \right]$

</div>

(This section comprises of 5 very short answer (VSA) type questions of 2 marks each.)

Q.21. If $cot^{-1}(3x + 5) > \frac{\pi}{4}$, then find the range of the values of x.

Q.22. The cost (in rupees) of producing x items in factory, each day is given by

$$C(x) = 0.00013x^3 + 0.002\,x^2 + 5x + 2200$$

Find the marginal cost when 150 items are produced.

Q.23. (a) Find the derivative of $\tan^{-1} x$ with respect to $\log x$; (where $x \in (1, \infty)$).

<div align="center">

OR

</div>

Q.23. (b) Differentiate the following function with respect to x : $(cos\,x)^x ; \left(\text{where} x \in \left(0, \frac{\pi}{2} \right) \right)$.

Q.24. (a) If vectors $\vec{a} = 2\hat{\imath} + 2\hat{\jmath} + 3\hat{k}, \ \vec{b} = -\hat{\imath} + 2\hat{\jmath} + \hat{k}$ and $\vec{c} = 3\hat{\imath} + \hat{\jmath}$ are such that $\vec{b} + \lambda\vec{c}$ is perpendicular
   to $\vec{a}$, then find the value of λ.

<div align="center">

OR

</div>

Q.24. (b) A person standing at $O(0,0,0)$ is watching an aeroplane which is at the coordinate point

$A(4,0,3)$. At the same time he saw a bird at the coordinate point $B(0,0,1)$. Find the angles which

$\overrightarrow{BA}$ makes with the x,y and z axes.

Q.25. The two co-initial adjacent sides of a parallelogram are $2\hat{\imath} - 4\hat{\jmath} - 5\hat{k}$ and $2\hat{\imath} + 2\hat{\jmath} + 3\hat{k}$. Find its

diagonals and use them to find the area of the parallelogram.

(This section comprises of 6 short answer (SA) type questions of 3 marks each.)

Q.26. A kite is flying at a height of 3 metres and 5 metres of string is out. If the kite is moving away horizontally at the rate of 200 cm/s, find the rate at which the string is being released.

Q.27. According to a psychologist, the ability of a person to understand spatial concepts is given by

$A = \dfrac{1}{3}\sqrt{t}$, where t is the age in years, $t \in [5,18]$. Show that the rate of increase of the ability to

understand spatial concepts decreases with age in between 5 and 18.

Q.28. (a) An ant is moving along the vector $\vec{l_1} = \hat{\imath} - 2\hat{\jmath} + 3\hat{k}$. Few sugar crystals are kept along the vector

$\vec{l_2} = 3\hat{\imath} - 2\hat{\jmath} + \hat{k}$ which is inclined at an angle θ with the vector $\vec{l_1}$. Then find the angle θ. Also find

the scalar projection of $\vec{l_1}$ on $\vec{l_2}$.

OR

Q.28. (b) Find the vector and the cartesian equation of the line that passes through $(-1, 2, 7)$ and is

perpendicular to the lines $\vec{r} = 2\hat{\imath} + \hat{\jmath} - 3\hat{k} + \lambda(\hat{\imath} + 2\hat{\jmath} + 5\hat{k})$ and $\vec{r} = 3\hat{\imath} + 3\hat{\jmath} - 7\hat{k} + \mu(3\hat{\imath} - 2\hat{\jmath} + 5\hat{k})$.

Q.29. (a) Evaluate: $\int \left\{ \dfrac{1}{\log x} - \dfrac{1}{(\log x)^2} \right\} dx$; (where $x > 1$).

OR

Q.29. (b) Evaluate : $\int_0^1 x(1 - x)^n dx$; (where $n \in N$).

Q.30. Consider the following Linear Programming Problem:

Minimise $Z = x + 2y$

Subject to $2x + y \geq 3$, $x + 2y \geq 6$, $x, y \geq 0$.

Show graphically that the minimum of Z occurs at more than two points

Q.31. (a) The probability that it rains today is **0.4**. If it rains today, the probability that it will rain tomorrow

is **0.8**. If it does not rain today, the probability that it will rain tomorrow is **0.7**. If

P_1: denotes the probability that it does not rain today.

P_2: denotes the probability that it will not rain tomorrow, if it rains today.

P_3: denotes the probability that it will rain tomorrow, if it does not rain today.

P_4: denotes the probability that it will not rain tomorrow, if it does not rain today.

(i) Find the value of $P_1 \times P_4 - P_2 \times P_3$. $[2\,Marks]$

(ii) Calculate the probability of raining tomorrow. $[1\,Mark]$

OR

Q.31. (b) A random variable X can take all non – negative integral values and the probability that X takes

the value r is proportional to 5^{-r}. Find $P(X < 3)$.

SECTION D $\quad [5 \times 4 = 20]$

(This section comprises of 4 long answer (LA) type questions of 5 marks each)

Q.32. Draw the rough sketch of the curve $y = 20 \cos 2x;\left(\text{where} \frac{\pi}{6} \le x \le \frac{\pi}{3}\right)$.

Using integration, find the area of the region bounded by the curve y = 20 cos2x from the ordinates $x = \frac{\pi}{6}$ to $x = \frac{\pi}{3}$ and the x − axis.

Q.33. The equation of the path traversed by the ball headed by the footballer is

$y = ax^2 + bx + c; (where\ 0 \le x \le 14\ and\ a, b, c \in R\ and\ a \ne 0)$ with respect to a XY-coordinate

system in the vertical plane. The ball passes through the points $(2, 15)$, $(4, 25)$ **and** $(14, 15)$. Determine

the values of a, b and c by solving the system of linear equations in a, b and c, using matrix method.

Also find the equation of the path traversed by the ball.

Q.34. (a) If $f: R \to R$ is defined by $f(x) = |x|^3$, show that $f''(x)$ exists for all real x and find it.

OR

Q.34. (b) If $(x - a)^2 + (y - b)^2 = c^2$, for some $c > 0$, prove that $\dfrac{\left[1 + \left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}}{\frac{d^2y}{dx^2}}$ is a constant independent

of a and b.

Q.35. (a) Find the shortest distance between the lines l_1 and l_2 whose vector equations are

$$\vec{r} = (-\hat{\imath} - \hat{\jmath} - \hat{k}) + \lambda(7\hat{\imath} - 6\hat{\jmath} + \hat{k}) \text{ and } \vec{r} = (3\hat{\imath} + 5\hat{\jmath} + 7\hat{k}) + \mu(\hat{\imath} - 2\hat{\jmath} + \hat{k})$$

where λ and μ are parameters.

OR

Q.35. (b) Find the image of the point $(1, 2, 1)$ with respect to the line $\frac{x-3}{1} = \frac{y+1}{2} = \frac{z-1}{3}$. Also find the

equation of the line joining the given point and its image.

SECTION- E $\quad [4 \times 3 = 12]$

(This section comprises of 3 case-study/passage-based questions of 4 marks each with subparts. The first
two case study questions have three subparts (i), (ii), (iii) of marks 1, 1, 2 respectively. The third case study
question has two subparts of 2 marks each)

Case Study-1

Q.36. Ramesh, the owner of a sweet selling shop, purchased some rectangular card board sheets of

dimension **25cm by 40 cm** to make container packets without top. Let $x\ cm$ be the length of the side of the

square to be cut out from each corner to give that sheet the shape of the container by folding up the flaps.

Based on the above information answer the following questions.

(i) Express the volume (V) of each container as function of x only. $[1\,Mark]$

(ii) Find $\frac{dV}{dx}$ $[1\,Mark]$

(iii) (a) For what value of x, the volume of each container is maximum? $[2\,Marks]$

OR

(iii) (b) Check whether V has a point of inflection at $x = \frac{65}{6}$ or not? $[2\,Marks]$

Case Study-2

Q.37. An organization conducted bike race under 2 different categories-boys and girls. In all, there were **250** participants. Among all of them finally three from Category **1** and two from Category **2** were selected for the final race. Ravi forms two sets **B** and **G** with these participants for his college project.

Let $B = \{b_1, b_2, b_3\}, G = \{g_1, g_2\}$ where **B** represents the set of boys selected and **G** the set of girls who were selected for the final race.

Ravi decides to explore these sets for various types of relations and functions.

On the basis of the above information, answer the following questions:

(i) Ravi wishes to form all the relations possible from **B** to **G**. How many such relations are possible? $[1\,Mark]$

(ii) Write the smallest equivalence relation on **G**. $[1\,Mark]$

(iii) (a) Ravi defines a relation from **B to B** as $R_1 = \{(b_1, b_2), (b_2, b_1)\}$. Write the minimum ordered pairs to be added in R_1 so that it becomes (A) reflexive but not symmetric, (B) reflexive and symmetric but not transitive. $[2\,Marks]$

OR

(iii) (b) If the track of the final race (for the biker b_1) follows the curve

$x^2 = 4y; \left(where\, 0 \le x \le 20\sqrt{2} \,\&\, 0 \le y \le 200\right)$, then state whether the track represents a one-one and onto function or not. (Justify). $[2\,Marks]$

Case Study- 3

Q.38. Arka bought two cages of birds: Cage-I contains 5 parrots and 1 owl and Cage –II contains 6 parrots. One day Arka forgot to lock both cages and two birds flew from Cage-I to Cage-II (simultaneously). Then two birds flew back from cage-II to cage-I(simultaneously).

Assume that all the birds have equal chances of flying.

On the basis of the above information, answer the following questions:-

(i)   When two birds flew from Cage-I to Cage-II and two birds flew back from Cage-II to Cage-I then find the probability that the owl is still in Cage-I. $\left[\mathbf{2}\,Marks\right]$

(ii)   When two birds flew from Cage-I to Cage-II and two birds flew back from Cage-II to Cage-I, the owl is still seen in Cage-I, what is the probability that one parrot and the owl flew from Cage-I to Cage-II? $\left[\mathbf{2}\,Marks\right]$

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SECTION: A (Solution of MCQs of 1 Mark each)

Q no.	ANS	HINTS/SOLUTION
1.	(D)	For a square matrix A of order $n \times n$, we have $A.(adj\ A) = \lvert A \rvert I_n$, where I_n is the identity matrix of order $n \times n$. So, $A.(adj\ A) = \begin{bmatrix} 2025 & 0 & 0 \\ 0 & 2025 & 0 \\ 0 & 0 & 2025 \end{bmatrix} = 2025 I_3, \Rightarrow \lvert A \rvert = 2025$ & $\lvert adj\ A \rvert = \lvert A \rvert^{3-1} = (2025)^2$ $\therefore \lvert A \rvert + \lvert adj\ A \rvert = 2025 + (2025)^2.$
2.	(A)	$\begin{array}{cc} P & Y \\ \downarrow \text{Order} & \downarrow \text{Order} \\ p \times k & 3 \times k \end{array}$ $\begin{array}{cc} W & Y \\ \downarrow \text{Order} & \downarrow \text{Order} \\ n \times 3 & 3 \times k \end{array}$ For PY to exist $\qquad$ Order of WY $k = 3$ $\qquad\qquad = n \times k$ Order of $PY = p \times k$ For $PY + WY$ to exist $\ \text{order}(PY) = \text{order}(WY)$ $\therefore p = n$
3.	(C)	$y = e^x \implies \dfrac{dy}{dx} = e^x$ In the domain (R) of the function, $\dfrac{dy}{dx} > 0$, hence the function is strictly increasing in $(-\infty, \infty)$
4.	(B)	$\lvert A \rvert = 5, \ \left\lvert B^{-1}AB \right\rvert^2 = \left(\left\lvert B^{-1} \right\rvert \lvert A \rvert \lvert B \rvert \right)^2 = \lvert A \rvert^2 = 5^2.$
5.	(B)	A differential equation of the form $\dfrac{dy}{dx} = f(x,y)$ is said to be homogeneous, if $f(x,y)$ is a homogeneous function of degree 0. Now, $x^n \dfrac{dy}{dx} = y\left(\log_e \dfrac{y}{x} + \log_e e \right) \Rightarrow \dfrac{dy}{dx} = \dfrac{y}{x^n}\left(\log_e e.\left(\dfrac{y}{x} \right) \right) = f(x,y); (Let).$ $f(x,y)$ will be a homogeneous function of degree **0,** if $n = 1$.
6.	(A)	**Method 1:** (*Short cut*) When the points $(x_1, y_1),(x_2, y_2)$ and $(x_1 + x_2, y_1 + y_2)$ are collinear in the Cartesian plane then $\begin{vmatrix} x_1 - x_2 & y_1 - y_2 \\ x_1 - (x_1 + x_2) & y_1 - (y_1 + y_2) \end{vmatrix} = 0 \Rightarrow \begin{vmatrix} x_1 - x_2 & y_1 - y_2 \\ -x_2 & -y_2 \end{vmatrix} = (-x_1 y_2 + x_2 y_2 + x_2 y_1 - x_2 y_2) = 0$ $\Rightarrow x_2 y_1 = x_1 y_2.$

		Method 2:

Method 2:

When the points $(x_1, y_1), (x_2, y_2)$ and $(x_1 + x_2, y_1 + y_2)$ are collinear in the Cartesian plane then

$$\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_1 + x_2 & y_1 + y_2 & 1 \end{vmatrix} = 0$$

$\Rightarrow 1.(x_2 y_1 + x_2 y_2 - x_1 y_2 - x_2 y_2) - 1(x_1 y_1 + x_1 y_2 - x_1 y_1 - x_2 y_1) + (x_1 y_2 - x_2 y_1) = 0$

$\Rightarrow x_2 y_1 = x_1 y_2.$

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7. (A)

$$A = \begin{bmatrix} 0 & 1 & c \\ -1 & a & -b \\ 2 & 3 & 0 \end{bmatrix}$$

When the matrix A is skew symmetric then $A^T = -A \Rightarrow a_{ij} = -a_{ji}$;

$\Rightarrow c = -2; a = 0$ and $b = 3$

So, $a + b + c = 0 + 3 - 2 = 1.$

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8. (C)

$P(\bar{A}) = \dfrac{1}{2}; P(\bar{B}) = \dfrac{2}{3}; P(A \cap B) = \dfrac{1}{4}$

$\Rightarrow P(A) = \dfrac{1}{2}; P(B) = \dfrac{1}{3}$

We have, $P(A \cup B) = P(A) + P(B) - P(A \cap B) = \dfrac{1}{2} + \dfrac{1}{3} - \dfrac{1}{4} = \dfrac{7}{12}$

$P\left(\dfrac{\bar{A}}{\bar{B}}\right) = \dfrac{P(\bar{A} \cap \bar{B})}{P(\bar{B})} = \dfrac{P(\overline{A \cup B})}{P(\bar{B})} = \dfrac{1 - P(A \cup B)}{P(\bar{B})} = \dfrac{1 - \dfrac{7}{12}}{\dfrac{2}{3}} = \dfrac{5}{8}.$

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9. (B)

For obtuse angle, $\cos \theta < 0 \implies \vec{p}.\vec{q} < 0$

$2\alpha^2 - 3\alpha + \alpha < 0 \implies 2\alpha^2 - 2\alpha < 0 \implies \alpha \in (0, 1)$

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10. (C)

$|\vec{a}| = 3, |\vec{b}| = 4, |\vec{a} + \vec{b}| = 5$

We have, $|\vec{a} + \vec{b}|^2 + |\vec{a} - \vec{b}|^2 = 2\left(|\vec{a}|^2 + |\vec{b}|^2\right) = 2(9 + 16) = 50 \Rightarrow |\vec{a} - \vec{b}| = 5.$

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11. (B)

Corner point	Value of the objective function $Z = 4x + 3y$
1. $O(0,0)$	$z = 0$
2. $R(40,0)$	$z = 160$
3. $Q(30,20)$	$z = 120 + 60 = 180$
4. $P(0,40)$	$z = 120$

Since, the feasible region is bounded so the maximum value of the objective function $z = 180$ is at $Q(30,20).$

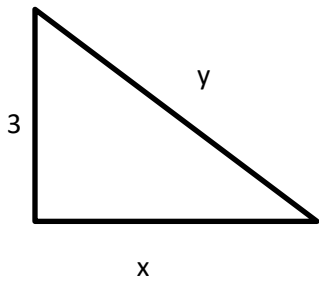|		
12.	**(A)**	$\int \dfrac{dx}{x^3\left(1+x^4\right)^{\frac{1}{2}}} = \int \dfrac{dx}{x^5\left(1+\frac{1}{x^4}\right)^{\frac{1}{2}}}$ (Let $1+x^{-4} = 1+\frac{1}{x^4} = t$, $dt = -4x^{-5}dx = -\frac{4}{x^5}dx \Rightarrow \frac{dx}{x^5} = -\frac{1}{4}dt$) $= -\frac{1}{4}\int \dfrac{dt}{t^{\frac{1}{2}}} = -\frac{1}{4} \times 2 \times \sqrt{t} + c$, where $\textbf{\textit{'c'}}$ denotes any arbitrary constant of integration. $= -\frac{1}{2}\sqrt{1+\frac{1}{x^4}} + c = -\dfrac{1}{2x^2}\sqrt{1+x^4} + c$
13.	**(A)**	We know, $\int_0^{2a} f(x)dx = 0,$ **if** $f(2a-x) = -f(x)$ Let $f(x) = \cosec^7 x$. Now, $f(2\pi - x) = \cosec^7(2\pi - x) = -\cosec^7 x = -f(x)$ $\therefore \displaystyle\int\limits_0^{2\pi} \cosec^7 x \, dx = 0;$ Using the property $\int_0^{2a} f(x)dx = 0,$ **if** $f(2a-x) = -f(x)$.
14.	**(B)**	The given differential equation $e^{y'} = x \Rightarrow \dfrac{dy}{dx} = \log x$ $dy = \log x \, dx \Rightarrow \int dy = \int \log x \, dx$ $y = x\log x - x + c$ hence the correct option is **(B)**.
15.	**(B)**	The graph represents $y = \cos^{-1} x$ whose domain is $\left[-1,1\right]$ and range is $\left[0,\pi\right]$.
16.	**(D)**	Since the inequality $Z = 18x + 10y < 134$ has no point in common with the feasible region hence the minimum value of the **objective function** $Z = 18x + 10y$ is **134** at $P(3,8)$.
17.	**(D)**	The graph of the function $f: R \to R$ defined by $f(x) = [x]; \left(\textbf{where}[.]\textbf{denotes } \textbf{\textit{G.I.F}}\right)$ is a straight line $\forall x \in (2.5 - h, 2.5 + h)$, $\textbf{\textit{'h'}}$ is an infinitesimally small positive quantity. Hence, the function is continuous and differentiable at $x = 2.5$.
18.	**(B)**	**The required region is symmetric about the** $y-$axis. So, required area (in sq units) is $= \left\lvert 2\displaystyle\int\limits_0^4 2\sqrt{y}dy\right\rvert = 4\left[\dfrac{y^{\frac{3}{2}}}{\frac{3}{2}}\right]_0^4 = \dfrac{64}{3}$.
19.	**(A)**	**Both (A) and (R) are true and (R) is the correct explanation of (A).**
20.	**(A)**	**Both (A) and (R) are true and (R) is the correct explanation of (A).**

Section –B

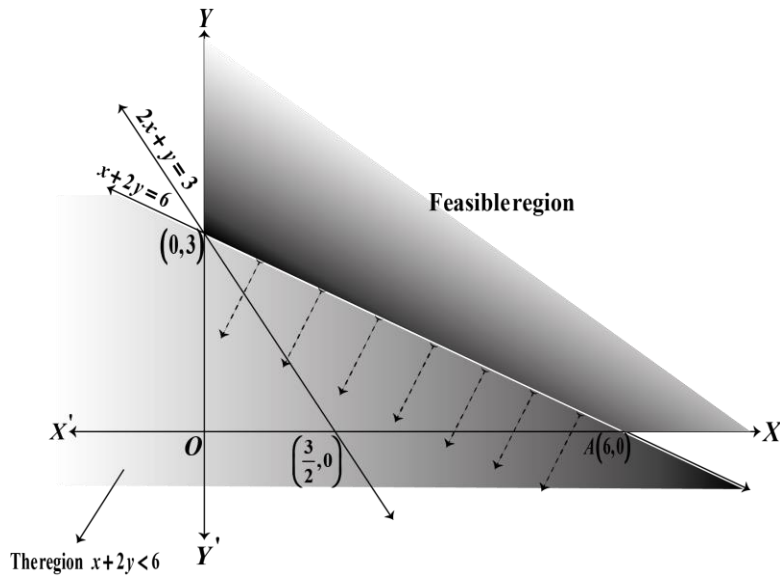**[This section comprises of solution of very short answer type questions (VSA) of 2 marks each]**

21	$\cot^{-1}(3x+5) > \dfrac{\pi}{4} = \cot^{-1}1$	$\dfrac{1}{2}$
	$=> 3x + 5 < 1$ (as $\cot^{-1}x$ is strictly decreasing function in its domain)	$\dfrac{1}{2}$
	$=> 3x < -4$ $=> x < -\dfrac{4}{3}$ $\therefore x \in \left(-\infty, -\dfrac{4}{3}\right)$	1
22.	The marginal cost function is $C'(x) = 0.00039x^2 + 0.004x + 5$.	1
	$C'(150) = ₹\ 14.375$.	1
23.(a)	$y = \tan^{-1}x$ and $z = \log_e x$.	
	Then $\dfrac{dy}{dx} = \dfrac{1}{1+x^2}$	$\dfrac{1}{2}$
	and $\dfrac{dz}{dx} = \dfrac{1}{x}$	$\dfrac{1}{2}$
	So, $\dfrac{dy}{dz} = \dfrac{\dfrac{dy}{dx}}{\dfrac{dz}{dx}}$	$\dfrac{1}{2}$
	$= \dfrac{\dfrac{1}{1+x^2}}{\dfrac{1}{x}} = \dfrac{x}{1+x^2}$.	$\dfrac{1}{2}$
OR 23.(b)	Let $y = (\cos x)^x$. Then, $y = e^{x\log_e \cos x}$	
	On differentiating both sides with respect to x, we get $\dfrac{dy}{dx} = e^{x\log_e \cos x}\dfrac{d}{dx}(x\log_e \cos x)$	$\dfrac{1}{2}$
	$\Rightarrow \dfrac{dy}{dx} = (\cos x)^x\left\{\log_e \cos x \dfrac{d}{dx}(x) + x\dfrac{d}{dx}(\log_e \cos x)\right\}$	$\dfrac{1}{2}$
	$\Rightarrow \dfrac{dy}{dx} = (\cos x)^x\left\{\log_e \cos x + x.\dfrac{1}{\cos x}(-\sin x)\right\} \Rightarrow \dfrac{dy}{dx} = (\cos x)^x(\log_e \cos x - x\tan x)$.	1
24.(a)	We have $\vec{b} + \lambda\vec{c} = (-1 + 3\lambda)\hat{\imath} + (2 + \lambda)\hat{\jmath} + \hat{k}$	$\dfrac{1}{2}$
	$(\vec{b} + \lambda\vec{c}).\vec{a} = 0 \ => \ 2(-1 + 3\lambda) + 2(2 + \lambda) + 3 = 0$	1
	$\lambda = -\dfrac{5}{8}$	$\dfrac{1}{2}$
OR 24.(b)	$\overrightarrow{BA} = \overrightarrow{OA} - \overrightarrow{OB} = (4\hat{\imath} + 3\hat{k}) - \hat{k} = 4\hat{\imath} + 2\hat{k}$	$\dfrac{1}{2}$

	$\widehat{BA} = \frac{4}{2\sqrt{5}}\hat{\imath} + \frac{2}{2\sqrt{5}}\hat{k} = \frac{2}{\sqrt{5}}\hat{\imath} + \frac{1}{\sqrt{5}}\hat{k}$	$\frac{1}{2}$
	So, the angles made by the vector $\overrightarrow{BA}$ with the x, y and the z axes are respectively	1
	$cos^{-1}\left(\frac{2}{\sqrt{5}}\right), \frac{\pi}{2}, cos^{-1}\left(\frac{1}{\sqrt{5}}\right).$	
25.	$\overrightarrow{d_1} = \vec{a} + \vec{b} = 4\hat{\imath} - 2\hat{\jmath} - 2\hat{k}$, $\overrightarrow{d_2} = \vec{a} - \vec{b} = -6\hat{\jmath} - 8\hat{k}$	$\frac{1}{2}$
	Area of the parallelogram $= \frac{1}{2}\left|\overrightarrow{d_1} \times \overrightarrow{d_2}\right| = \frac{1}{2}\begin{Vmatrix}\hat{\imath} & \hat{\jmath} & \hat{k} \\ 4 & -2 & -2 \\ 0 & -6 & -8\end{Vmatrix} = 2\left|\hat{\imath} + 8\hat{\jmath} - 6\hat{k}\right|$	1
	Area of the parallelogram $= 2\sqrt{101}$ sq. units.	$\frac{1}{2}$

Section –C

[This section comprises of solution short answer type questions (SA) of 3 marks each]

26.		$\frac{1}{2}$
	$x^2 + 3^2 = y^2$	$\frac{1}{2}$
	$When\ y = 5\ then\ x = 4, now\ 2x\ \frac{dx}{dt} = 2y\ \frac{dy}{dt}$	1
	$4\ (200) = 5\ \frac{dy}{dt} \Rightarrow \frac{dy}{dt} = 160\ cm/s$	1
27.	$A = \frac{1}{3}\sqrt{t} \therefore \frac{dA}{dt} = \frac{1}{6}t^{-\frac{1}{2}} = \frac{1}{6\sqrt{t}}; \forall t \in (5,18)$	1
	$\frac{dA}{dt} = \frac{1}{6\sqrt{t}} \therefore \frac{d^2A}{dt^2} = -\frac{1}{12t\sqrt{t}}$	1
	So, $\frac{d^2A}{dt^2} < 0, \forall t \in (5,18)$	$\frac{1}{2}$
	This means that the rate of change of the ability to understand spatial concepts decreases (slows down) with age.	$\frac{1}{2}$
28(a)	**(i)** $\theta = \cos^{-1}\left(\frac{\overrightarrow{l_1}.\overrightarrow{l_2}}{\left|\overrightarrow{l_1}\right|.\left|\overrightarrow{l_2}\right|}\right) = \cos^{-1}\left(\frac{(\hat{\imath}-2\hat{\jmath}+3\hat{k}).(3\hat{\imath}-2\hat{\jmath}+\hat{k})}{\left|(\hat{\imath}-2\hat{\jmath}+3\hat{k})\right|\left|(3\hat{\imath}-2\hat{\jmath}+\hat{k})\right|}\right)$	1
	$= \cos^{-1}\left(\frac{3+4+3}{\sqrt{1+4+9}\sqrt{9+4+1}}\right) = \cos^{-1}\left(\frac{10}{14}\right) = \cos^{-1}\left(\frac{5}{7}\right).$	$\frac{1}{2}$
	(ii) Scalar projection of $\overrightarrow{l_1}$ on $\overrightarrow{l_2}$ $= \frac{\overrightarrow{l_1}.\overrightarrow{l_2}}{\left|\overrightarrow{l_2}\right|} = \frac{(\hat{\imath}-2\hat{\jmath}+3\hat{k}).(3\hat{\imath}-2\hat{\jmath}+\hat{k})}{\left|(3\hat{\imath}-2\hat{\jmath}+\hat{k})\right|}$	1
	$= \frac{3+4+3}{\sqrt{9+4+1}} = \frac{10}{\sqrt{14}}.$	$\frac{1}{2}$

28(b)	Line perpendicular to the lines	
	$\vec{r} = 2\hat{\imath} + \hat{\jmath} - 3\hat{k} + \lambda(\hat{\imath} + 2\hat{\jmath} + 5\hat{k})$ and $\vec{r} = 3\hat{\imath} + 3\hat{\jmath} - 7\hat{k} + \mu(3\hat{\imath} - 2\hat{\jmath} + 5\hat{k})$.	
	has a vector parallel it is given by $\vec{b} = \vec{b_1} \times \vec{b_2} = \begin{vmatrix} \hat{\imath} & \hat{\jmath} & \hat{k} \\ 1 & 2 & 5 \\ 3 & -2 & 5 \end{vmatrix} = 20\hat{\imath} + 10\hat{\jmath} - 8\hat{k}$	1
	$\therefore$ equation of line in vector form is $\vec{r} = -\hat{\imath} + 2\hat{\jmath} + 7\hat{k} + a(10\hat{\imath} + 5\hat{\jmath} - 4\hat{k})$	1
	And equation of line in cartesian form is $\dfrac{x+1}{10} = \dfrac{y-2}{5} = \dfrac{z-7}{-4}$	1
29.(a)	$\int \left\{ \dfrac{1}{\log_e x} - \dfrac{1}{(\log_e x)^2} \right\} dx$	
	$= \int \dfrac{dx}{\log_e x} - \int \dfrac{1}{(\log_e x)^2} dx = \dfrac{1}{\log_e x} \int dx - \int \left\{ \dfrac{d}{dx}\left(\dfrac{1}{\log_e x}\right) \int dx \right\} dx - \int \dfrac{1}{(\log_e x)^2} dx$	1
	$= \dfrac{x}{\log_e x} + \int \dfrac{1}{(\log_e x)^2} \dfrac{1}{x} \cdot x \cdot dx - \int \dfrac{1}{(\log_e x)^2} dx$	1
	$= \dfrac{x}{\log_e x} + \int \dfrac{1}{(\log_e x)^2} dx - \int \dfrac{dx}{(\log_e x)^2} = \dfrac{x}{\log_e x} + c;$	1
	where $'c'$ is any arbitary constant of integration.	
OR 29.(b)	$\int\limits_0^1 x(1-x)^n dx$	
	$= \int_0^1 (1-x)\{1-(1-x)\}^n \, dx, \left(as, \int_0^a f(x)dx = \int_0^a f(a-x)dx \right)$	1
	$= \int_0^1 x^n (1-x) dx$	
	$= \int_0^1 x^n dx - \int_0^1 x^{n+1} dx$	$\dfrac{1}{2}$
	$= \dfrac{1}{n+1}[x^{n+1}]_0^1 - \dfrac{1}{n+2}[x^{n+2}]_0^1$	$\dfrac{1}{2}$
	$= \dfrac{1}{n+1} - \dfrac{1}{n+2} \quad = \dfrac{1}{(n+1)(n+2)}.$	1
30.	The feasible region determined by the constraints, $2x + y \geq 3$, $x + 2y \geq 6$, $x \geq 0, y \geq 0$ is as shown.	

The corner points of the **unbounded** feasible region are $A(6,0)$ and $B(0,3)$.

The values of Z at these corner points are as follows:

Corner point	Value of the objective function $Z = x + 2y$
$A(6,0)$	6
$B(0,3)$	6

We observe the region $x + 2y < 6$ have no points in common with the unbounded feasible region. Hence the minimum value of $z = 6$.

It can be seen that the value of Z at points **A** and **B** is same. If we take any other point on the line $x + 2y = 6$ such as $(2,2)$ on line $x + 2y = 6,$ then $Z = 6$.

Thus, the minimum value of Z occurs for more than **2** points, and is equal to 6.

31.(a)	Since the event of raining today and not raining today are complementary events so if the probability that it rains today is 0.4 then the probability that it does not rain today is $1 - 0.4 = 0.6 \Rightarrow P_1 = 0.6$

If it rains today, the probability that it will rain tomorrow is 0.8 then the probability that it will not rain tomorrow is $1-0.8=0.2$.

If it does not rain today, the probability that it will rain tomorrow is 0.7 then the probability that it will not rain tomorrow is $1-0.7=0.3$
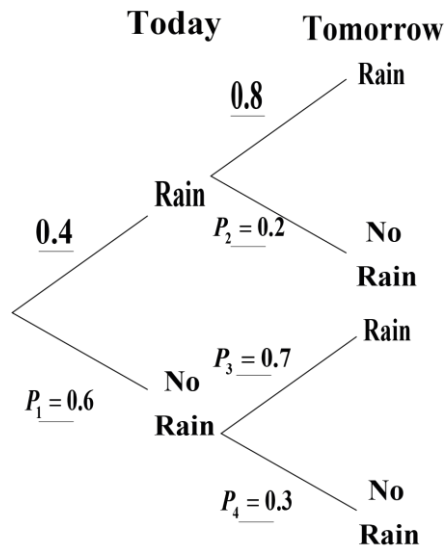
(i) $P_1 \times P_4 - P_2 \times P_3 = 0.6 \times 0.3 - 0.2 \times 0.7 = 0.04.$ **1**

(ii)   Let E_1 and E_2 be the events that it will rain today and it will not rain today respectively.   **1**

$P(E_1) = 0.4 \, \& \, P(E_2) = 0.6$

A be the event that it will rain tomorrow. $P\left(\frac{A}{E_1}\right) = 0.8 \, \& \, P\left(\frac{A}{E_2}\right) = 0.7$ $\dfrac{1}{2}$

We have, $P(A) = P(E_1)P\left(\frac{A}{E_1}\right) + P(E_2)P\left(\frac{A}{E_2}\right) = 0.4 \times 0.8 + 0.6 \times 0.7 = 0.74.$

The probability of rain tomorrow is **0.74**. $\dfrac{1}{2}$

OR		
31.(b)	Given $P(X = r)\alpha\frac{1}{5^r}$ $P(X = r) = k\frac{1}{5^r},$ (where k is a non-zero constant) $P(r = 0) = k.\dfrac{1}{5^0}$ $P(r = 1) = k.\dfrac{1}{5^1}$ $P(r = 2) = k.\dfrac{1}{5^2}$ $P(r = 3) = k.\dfrac{1}{5^3}$ …………………………… …………………………… We have, $P(X = 0) + P(X = 1) + P(X = 2) + …………… = 1$	$\dfrac{1}{2}$ $\dfrac{1}{2}$ $\dfrac{1}{2}$

$$\Rightarrow k\left(1 + \frac{1}{5} + \frac{1}{5^2} + \frac{1}{5^3} + \ldots\ldots\ldots\right) = 1$$

$$\Rightarrow k\left(\frac{1}{1 - \frac{1}{5}}\right) = 1 \Rightarrow k = \frac{4}{5}$$

$\dfrac{1}{2}$

So, $P(X < 3) = P(X = 0) + P(X = 1) + P(X = 2)$
$$= \frac{4}{5}\left(1 + \frac{1}{5} + \frac{1}{5^2}\right) = \frac{4}{5}\left(\frac{25 + 5 + 1}{25}\right) = \frac{124}{125}.$$

1

<u>**Section –D**</u>

[This section comprises of solution of long answer type questions (LA) of 5 marks each]

32.	$$y = 20\cos 2x\,; \quad \left\{\frac{\pi}{6} \le x \le \frac{\pi}{3}\right\}$$ 	1
	Required area $= 20 \int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \cos 2x\,dx + \left\lvert 20 \int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \cos 2x\,dx \right\rvert$	1+1
	$= 20\left[\frac{\sin 2x}{2}\right]_{\frac{\pi}{6}}^{\frac{\pi}{4}} + \left\lvert 20\left[\frac{\sin 2x}{2}\right]_{\frac{\pi}{4}}^{\frac{\pi}{3}} \right\rvert$	1
	$= 10\left(1 - \frac{\sqrt{3}}{2}\right) + 10\left(1 - \frac{\sqrt{3}}{2}\right) = 20\left(1 - \frac{\sqrt{3}}{2}\right)$ sq. units.	1
33.	$y = ax^2 + bx + c$	
	$15 = 4a + 2b + c$	1
	$25 = 16a + 4b + c$	
	$15 = 196a + 14b + c$	
	The set of equations can be represented in the matrix form as $AX = B$,	$\dfrac{1}{2}$
	where $A = \begin{bmatrix} 4 & 2 & 1 \\ 16 & 4 & 1 \\ 196 & 14 & 1 \end{bmatrix}$, $X = \begin{bmatrix} a \\ b \\ c \end{bmatrix}$ and $B = \begin{bmatrix} 15 \\ 25 \\ 15 \end{bmatrix} \Rightarrow \begin{bmatrix} 4 & 2 & 1 \\ 16 & 4 & 1 \\ 196 & 14 & 1 \end{bmatrix}\begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} 15 \\ 25 \\ 15 \end{bmatrix}$.	
	$\lvert A \rvert = 4(4 - 14) - 2(16 - 196) + (224 - 784) = -40 + 360 - 560 = -240 \ne 0$. Hence A^{-1} exists.	$\dfrac{1}{2}$

Now, $adj(A) = \begin{bmatrix} -10 & 180 & -560 \\ 12 & -192 & 336 \\ -2 & 12 & -16 \end{bmatrix}^T = \begin{bmatrix} -10 & 12 & -2 \\ 180 & -192 & 12 \\ -560 & 336 & -16 \end{bmatrix}$

$\begin{bmatrix} a \\ b \\ c \end{bmatrix} = -\frac{1}{240}\begin{bmatrix} -10 & 12 & -2 \\ 180 & -192 & 12 \\ -560 & 336 & -16 \end{bmatrix}\begin{bmatrix} 15 \\ 25 \\ 15 \end{bmatrix} = -\frac{5}{240}\begin{bmatrix} -10 & 12 & -2 \\ 180 & -192 & 12 \\ -560 & 336 & -16 \end{bmatrix}\begin{bmatrix} 3 \\ 5 \\ 3 \end{bmatrix} = -\frac{5}{240}\begin{bmatrix} 24 \\ -384 \\ -48 \end{bmatrix}$

$\therefore a = -\frac{1}{2}, b = 8, c = 1$

So, the equation becomes $y = -\frac{1}{2}x^2 + 8x + 1$

34.(a)	We have, $f(x) = |x|^3, \begin{cases} x^3, \text{if } x \geq 0 \\ (-x)^3 = -x^3, \text{if} x < 0 \end{cases}$

Now, $(LHD \ at \ x = 0) = \lim_{x \to 0^-} \frac{f(x)-f(0)}{x-0} = \lim_{x \to 0^-}\left(\frac{-x^3-0}{x}\right) = \lim_{x \to 0^-}(-x^2) = 0$

$(RHD \ at x = 0) \lim_{x \to 0^+}\frac{f(x)-f(0)}{x-0} = \lim_{x \to 0^+}\left(\frac{x^3-0}{x}\right) = \lim_{x \to 0}(-x^2) = 0$

$\therefore (LHD \ of \ f(x) \ at \ x = 0) = (RHD \ of \ f(x) \ at \ x = 0)$

So, $f(x)$ is differentiable at $x = 0$ and the derivative of $f(x)$ is given by

$f'(x) = \begin{cases} 3x^2, \text{if} x \geq 0 \\ -3x^2, \text{if} x < 0 \end{cases}$

Now, $(LHD of f'(x) at x = 0) = \lim_{x \to 0^-}\frac{f'(x)-f'(0)}{x-0} = \lim_{x \to 0^-}\left(\frac{-3x^2-0}{x}\right) = \lim_{x \to 0^-}(-3x) = 0$

$(RHD \ of f'(x) \ at \ x = 0) = \lim_{x \to 0^+}\frac{f'(x)-f'(0)}{x-0} = \lim_{x \to 0^+}\left(\frac{3x^2-0}{x-0}\right) = \lim_{x \to 0^+}(3x) = 0$

$\therefore (LHD \ of f'(x) at \ x = 0) = (RHD of f'(x) at x = 0)$

So, $f'(x)$ is differentiable at $x = 0.$

Hence, $f''(x) = \begin{cases} 6x, \text{if} x \geq 0 \\ -6x, \text{if} x < 0. \end{cases}$

OR	Given relation is $(x-a)^2 + (y-b)^2 = c^2, c > 0.$
34 .(b)	

Let $x - a = c\cos\theta$ and $y - b = c\sin\theta$.

Therefore, $\frac{dx}{d\theta} = -c\sin\theta$ And $\frac{dy}{d\theta} = c\cos\theta$

$\therefore \frac{dy}{dx} = -\cot\theta$

Differentiate both sides with respect to θ, we get $\frac{d}{d\theta}\left(\frac{dy}{dx}\right) = \frac{d}{d\theta}(-\cot\theta)$

Or, $\frac{d}{dx}\left(\frac{dy}{dx}\right)\frac{dx}{d\theta} = \cos e\, c^2\theta$

Or, $\frac{d^2y}{dx^2}(-c\sin\theta) = \cosec^2\theta$
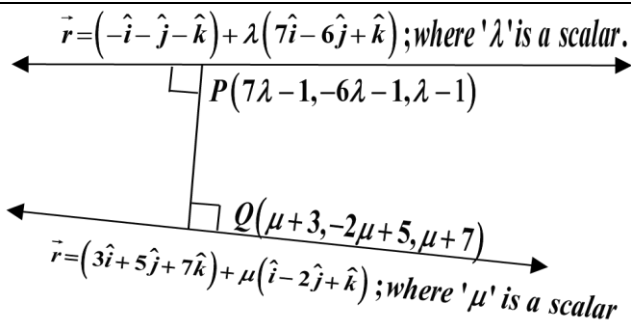
$$\frac{d^2y}{dx^2} = -\frac{cosec^3\theta}{c}$$

$$\therefore \frac{\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}}{\frac{d^2y}{dx^2}} = \frac{c[1+cot^2\theta]^{\frac{3}{2}}}{-cos\,ec^3\theta} = \frac{-c(cos\,ec^2\theta)^{\frac{3}{2}}}{\cosec^3\theta} = -c,$$

Which is constant and is independent of **a** and **b** .

35.(a)		

Given that equation of lines are

$\vec{r} = (-\hat{\imath} - \hat{\jmath} - \hat{k}) + \lambda(7\hat{\imath} - 6\hat{\jmath} + \hat{k})\ldots\ldots\ldots\ldots(i)$ and

$\vec{r} = (3\hat{\imath} + 5\hat{\jmath} + 7\hat{k}) + \mu(\hat{\imath} - 2\hat{\jmath} + \hat{k})\ldots\ldots\ldots\ldots(ii)$

The given lines are non-parallel lines as vectors $7\hat{\imath} - 6\hat{\jmath} + \hat{k}$ and $\hat{\imath} - 2\hat{\jmath} + \hat{k}$ are not parallel. There is a unique line segment **PQ** (**P** lying on line (i) and **Q** on the other line (ii)), which is at right angles to both the lines **PQ** is the shortest distance between the lines.

Hence, the shortest possible distance between the lines $= \boldsymbol{PQ}$.

Let the position vector of the point **P** lying on the line $\vec{r} = (-\hat{\imath} - \hat{\jmath} - \hat{k}) + \lambda(7\hat{\imath} - 6\hat{\jmath} + \hat{k})$ where '$\boldsymbol{\lambda}$' is a scalar, is $(7\lambda - 1)\hat{\imath} - (6\lambda + 1)\hat{\jmath} + (\lambda - 1)\hat{k}$, for some $\boldsymbol{\lambda}$ and the position vector of the point **Q** lying on the line $\vec{r} = (3\hat{\imath} + 5\hat{\jmath} + 7\hat{k}) + \mu(\hat{\imath} - 2\hat{\jmath} + \hat{k})$ where '$\boldsymbol{\mu}$' is a scalar, is

$(\mu + 3)\hat{\imath} + (-2\mu + 5)\hat{\jmath} + (\mu + 7)\hat{k}$, for some $\boldsymbol{\mu}$. Now, the vector

$\overrightarrow{PQ} = \overrightarrow{OQ} - \overrightarrow{OP} = (\mu + 3 - 7\lambda + 1)\hat{\imath} + (-2\mu + 5 + 6\lambda + 1)\hat{\jmath} + (\mu + 7 - \lambda + 1)\hat{k}$

i.e., $\overrightarrow{PQ} = (\mu - 7\lambda + 4)\hat{\imath} + (-2\mu + 6\lambda + 6)\hat{\jmath} + (\mu - \lambda + 8)\hat{k}$; (where '$\boldsymbol{O}$' is the origin), is

perpendicular to both the lines, so the vector $\overrightarrow{PQ}$ is perpendicular to both the vectors $7\hat{\imath} - 6\hat{\jmath} + \hat{k}$ and $\hat{\imath} - 2\hat{\jmath} + \hat{k}.$

$\Rightarrow (\mu - 7\lambda + 4).7 + (-2\mu + 6\lambda + 6).(-6) + (\mu - \lambda + 8).1 = 0$

$\&(\mu - 7\lambda + 4).1 + (-2\mu + 6\lambda + 6).(-2) + (\mu - \lambda + 8).1 = 0$

$\Rightarrow \mathbf{20\mu - 86\lambda = 0} \ => \mathbf{10\mu - 43\lambda = 0} \& 6\mu - 20\lambda = 0 \Rightarrow 3\mu - 10\lambda = 0$ — 1

On solving the above equations, we get $\boldsymbol{\mu = \lambda = 0}$ — $\frac{1}{2}$

So, the position vector of the points $\boldsymbol{P}$ and $\boldsymbol{Q}$ are $-\hat{\imath} - \hat{\jmath} - \hat{k}$ and $3\hat{\imath} + 5\hat{\jmath} + 7\hat{k}$ respectively. — $\frac{1}{2}$

$\overrightarrow{PQ} = 4\hat{\imath} + 6\hat{\jmath} + 8\hat{k}$ and

$|\overrightarrow{PQ}| = \sqrt{4^2 + 6^2 + 8^2} = \sqrt{116} = 2\sqrt{29} \ units.$ — 1

OR

35.(b)
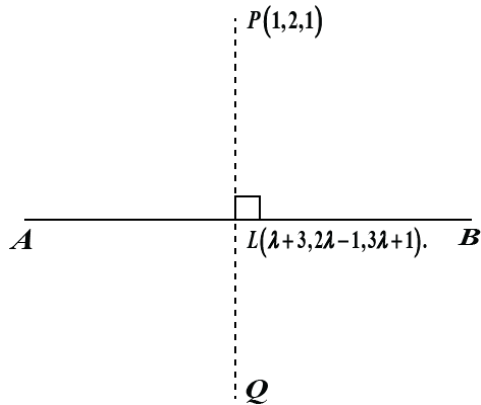
Let $\boldsymbol{P(1, 2, 1)}$ be the given point and $\boldsymbol{L}$ be the foot of the perpendicular from $\boldsymbol{P}$ to the given line $\boldsymbol{AB}$ (*as shown in the figure above*).

Let's put $\dfrac{\boldsymbol{x-3}}{\boldsymbol{1}} = \dfrac{\boldsymbol{y+1}}{\boldsymbol{2}} = \dfrac{\boldsymbol{z-1}}{\boldsymbol{3}} = \boldsymbol{\lambda}.$ Then, $\boldsymbol{x = \lambda + 3, y = 2\lambda - 1, z = 3\lambda + 1}$ — $\frac{1}{2}$

Let the coordinates of the point $\boldsymbol{L}$ be $\boldsymbol{(\lambda + 3, 2\lambda - 1, 3\lambda + 1).}$

So, direction ratios of $\boldsymbol{PL}$ are $(\lambda + 3 - 1, 2\lambda - 1 - 2, 3\lambda + 1 - 1)\ i.e., (\lambda + 2, 2\lambda - 3, 3\lambda)$

Direction ratios of the given line are $\boldsymbol{1,\ 2\ and\ 3,}$ which is perpendicular to $\boldsymbol{PL}$. Therefore, we have, — $\frac{1}{2}$

$$(\lambda + 2).1 + (2\lambda - 3).2 + 3\lambda.3 = 0 \Rightarrow 14\lambda = 4 \Rightarrow \lambda = \frac{2}{7}$$ — $\frac{1}{2}$

Then, $\lambda + 3 = \frac{2}{7} + 3 = \frac{23}{7}; \ \ 2\lambda - 1 = 2\left(\frac{2}{7}\right) - 1 = -\frac{3}{7}; \ \ 3\lambda + 1 = 3\left(\frac{2}{7}\right) + 1 = \frac{13}{7}$ — $\frac{1}{2}$

Therefore, coordinates of the point $\boldsymbol{L}$ are $\left(\frac{23}{7}, -\frac{3}{7}, \frac{13}{7}\right).$

Let $Q(x_1, y_1, z_1)$ be the image of $\boldsymbol{P(1, 2, 1)}$ with respect to the given line. Then, $\boldsymbol{L}$ is the mid-point of $\boldsymbol{PQ.}$ — 1

Therefore, $\frac{1+x_1}{2} = \frac{23}{7}, \frac{2+y_1}{2} = -\frac{3}{7}, \frac{1+z_1}{2} = \frac{13}{7} \Rightarrow x_1 = \frac{39}{7}, y_1 = -\frac{20}{7}, z_1 = \frac{19}{7}$

Hence, the image of the point $\boldsymbol{P(1,2,1)}$ with respect to the given line $Q\left(\frac{39}{7}, -\frac{20}{7}, \frac{19}{7}\right).$ — 1

The equation of the line joining $\boldsymbol{P(1,2,1)}$ and $Q\left(\frac{39}{7}, -\frac{20}{7}, \frac{19}{7}\right)$ is

| $\frac{x-1}{32/7} = \frac{y-2}{-34/7} = \frac{z-1}{12/7} \Rightarrow \frac{x-1}{16} = \frac{y-2}{-17} = \frac{z-1}{6}.$ | 1 |

Section –E

[This section comprises solution of 3 case- study/passage based questions of 4 marks each with two sub parts. Solution of the first two case study questions have three sub parts (i),(ii),(iii) of marks 1,1,2 respectively. Solution of the third case study question has two sub parts of 2 marks each.)

36.	(i) $V = (40 - 2x)(25 - 2x)x \, cm^3$	1
	(ii) $\frac{dV}{dx} = 4(3x - 50)(x - 5)$	1
	(iii) (a) For extreme values $\frac{dV}{dx} = 4(3x - 50)(x - 5) = 0$	$\frac{1}{2}$
	$\Rightarrow x = \frac{50}{3}$ or $x = 5$	$\frac{1}{2}$
	$\frac{d^2V}{dx^2} = 24x - 260$	$\frac{1}{2}$
	$\therefore \frac{d^2V}{dx^2}$ at $x = 5$ is $-140 < 0$	$\frac{1}{2}$
	$\therefore V$ is max $when \ x = 5$	
	(iii) **OR**	
	(b) For extreme values $\frac{dV}{dx} = 4(3x^2 - 65x + 250)$	$\frac{1}{2}$
	$\frac{d^2V}{dx^2} = 4(6x - 65)$	$\frac{1}{2}$
	$\frac{dV}{dx}$ at $x = \frac{65}{6}$ exists and $\frac{d^2V}{dx^2}$ at $x = \frac{65}{6}$ is 0.	
	$\frac{d^2V}{dx^2}$ at $x = \left(\frac{65}{6}\right)^-$ is negative and $\frac{d^2V}{dx^2}$ at $x = \left(\frac{65}{6}\right)^+$ is positive	$\frac{1}{2}$
	$\therefore x = \frac{65}{6}$ is a point of inflection.	$\frac{1}{2}$
37.	(i) **Number of relations is equal to the number of subsets of the set $B \times G = 2^{n(B \times G)}$**	1
	$= 2^{n(B) \times n(G)} = 2^{3 \times 2} = 2^6$	
	(*Where* $n(A)$ *denotes the number of the elements in the finite set* A)	
	(ii) **Smallest Equivalence relation on G is $\{(g_1, g_1), (g_2, g_2)\}$**	1
	(iii) (a) (A) reflexive but not symmetric $=$	
	$\{(b_1, b_2), (b_2, b_1), (b_1, b_1), (b_2, b_2), (b_3, b_3), (b_2, b_3)\}.$	

So the minimum number of elements to be added are

$(b_1, b_1), (b_2, b_2), (b_3, b_3), (b_2, b_3)$ **1**

{Note : it can be any one of the pair from, (b_3, b_2), (b_1, b_3), (b_3, b_1) in place of (b_2, b_3) *also*}

(B) reflexive and symmetric but not transitive =

$\{(b_1, b_2), (b_2, b_1), (b_1, b_1), (b_2, b_2), (b_3, b_3), (b_2, b_3), (b_3, b_2)\}$.

     1

So the minimum number of elements to be added are

$(b_1, b_1), (b_2, b_2), (b_3, b_3), (b_2, b_3), (b_3, b_2)$

OR (iii) (b) One-one and onto function

$x^2 = 4y.$ let $y = f(x) = \dfrac{x^2}{4}$

Let $x_1, x_2 \in \left[0, 20\sqrt{2}\right]$ such that $f(x_1) = f(x_2) \Rightarrow \dfrac{x_1^2}{4} = \dfrac{x_1^2}{4}$

$\Rightarrow x_1^2 = x_2^2 \Rightarrow (x_1 - x_2)(x_1 + x_2) = 0 \Rightarrow x_1 = x_2$ as $x_1, x_2 \in \left[0, 20\sqrt{2}\right]$ **1**

$\therefore f$ is one-one function

Now, $0 \le y \le 200$ hence the value of y is non-negative

and $f\left(2\sqrt{y}\right) = y$

$\therefore$ for any arbitrary $y \in [0, 200]$, the pre-image of y exists in $\left[0, 20\sqrt{2}\right]$ **1**

hence f is onto function.

---

38.   Let E_1 be the event that one parrot and one owl flew from cage –I

E_2 be the event that two parrots flew from Cage-I

A be the event that the owl is still in cage-I

(i)   Total ways for A to happen

From cage I 1 parrot and 1 owl flew and then from Cage-II 1 parrot and 1 owl flew back + From cage I 1 parrot and 1 owl flew and then from Cage-II 2 parrots flew back + From cage I 2 parrots flew and then from Cage-II 2 parrots came back. $\dfrac{1}{2}$

$= \left(5_{C_1} \times 1_{C_1}\right)\left(7_{C_1} \times 1_{C_1}\right) + \left(5_{C_1} \times 1_{C_1}\right)\left(7_{C_2}\right) + \left(5_{C_2}\right)\left(8_{C_2}\right)$

Probability that the owl is still in cage –I $= P(E_1 \cap A) + P(E_2 \cap A)$

$\dfrac{\left(5_{C_1} \times 1_{C_1}\right)\left(7_{C_1} \times 1_{C_1}\right) + \left(5_{C_2}\right)\left(8_{C_2}\right)}{\left(5_{C_1} \times 1_{C_1}\right)\left(7_{C_1} \times 1_{C_1}\right) + \left(5_{C_1} \times 1_{C_1}\right)\left(7_{C_2}\right) + \left(5_{C_2}\right)\left(8_{C_2}\right)}$ **1**

$= \dfrac{35 + 280}{35 + 105 + 280} = \dfrac{315}{420} = \dfrac{3}{4}$ $\dfrac{1}{2}$

(i) The probability that one parrot and the owl flew from Cage-I to Cage-II given that the owl is still in cage-I is $P\left(E_1/A\right)$

$P\left(E_1/A\right) = \dfrac{P(E_1 \cap A)}{P(E_1 \cap A) + P(E_2 \cap A)}$ (by Baye's Theorem)

$= \dfrac{\frac{35}{420}}{\frac{315}{420}} = \dfrac{1}{9}$

$\dfrac{1}{2}$

$\dfrac{1}{2}$

1

ACCOUNTANCY (055)

CLASS XII (2024–25)

SAMPLE QUESTION PAPER

TIME 3 HOURS   **MAX. MARKS 80**

GENERAL INSTRUCTIONS:

1. This question paper contains 34 questions. All questions are compulsory.
2. This question paper is divided into two parts, Part A and B.
3. Part - **A is compulsory for all candidates**.
4. Part - B has two options i.e. **(i) Analysis of Financial Statements and (ii) Computerised Accounting.** Students must attempt **only one** of the given options.
5. Question 1 to 16 and 27 to 30 carries 1 mark each.
6. Questions 17 to 20, 31and 32 carries **3** marks each.
7. Questions from 21 ,22 and 33 carries **4** marks each
8. Questions from 23 to 26 and 34 carries **6** marks each
9. There is no overall choice. However, an internal choice has been provided in 7 questions of **one mark**, 2 questions of **three marks**, 1 question of **four marks** and 2 questions of **six marks.**

PART A

(Accounting for Partnership Firms and Companies)

S.No.	Question	Marks
Part A :- Accounting for Partnership Firms and Companies		
1.	Anthony a partner was being guaranteed that his share of profits will not be less than ₹ 60,000 p.a. Deficiency, if any was to be borne by other partners Amar and Akbar equally. For the year ended 31st March, 2024 the firm incurred loss of ₹ 1,80,000. What amount will be debited to Amar's Capital Account in total at the end of the year? A. ₹ 60,000 B. ₹ 1,20,000 C. ₹ 90,000 D. ₹ 80,000	1

2.	Assertion: Partner's current accounts are opened when their capital are fluctuating.
	 Reasoning: In case of Fixed capitals all the transactions other than Capital are done through Current account of the partner.
	    A. Both A and R are true and R is the correct explanation of A.
	    B. Both A and R are true but R is not the correct explanation of A.
	    C. A is true but R is false
	    D. A is false but R is true
		1

3.	Forfeiture of shares leads to reduction of _____Capital. A. Authorised B. Issued C. Subscribed D. Called up	1

Moon ltd. issued 40,000, 10% debentures of ₹100 each at certain rate of discount and were to be redeemed at20% premium. Exiting balance of Securities premium before issuing of these debentures was ₹12,00,000 and after writing off loss on issue of debentures , the balance in Securities Premium was ₹2,00,000. At what rate of discount these debentures were issued?

A. 10%
B. 5%
C. 25%
D. 15%

4.	At the time of admission of new partner Vasu, Old partners Paresh and Prabhav had debtors of ₹ 6,20,000 and a provision for doubtful debts (PDD) of ₹ 20,000 in their books. As per terms of admission, assets were revalued, and it was found that debtors worth ₹ 15,000 had turned bad and hence should be written off. Which journal entry reflects the correct accounting treatment of the above situation?	1

A.   Bad Debts A/c Dr.   15,000
            To Debtors A/c   15,000
        Prov for D. debts A/c Dr.   15,000
            To Bad Debts A/c   15,000

B.   Bad Debts A/c Dr.   15,000
            To Debtors A/c   15,000
        Revaluation A/c Dr.   15,000
            To Prov for doubt debtsA/c   15,000

C.   Revaluation A/c Dr.   15,000
            To Debtors A/c   15,000

D.   Bad Debts A/c Dr.   15,000
            To Revaluation A/c   15,000

OR

Ram and Shyam were partners sharing profits and losses in the ratio of 3:2. Their balance sheet shows building at ₹ 1,60,000. They admitted Mohan as a new partner for 1/4th share. In additional information it is given that building is undervalued by 20%. The share of loss/gain of revaluation of Shyam is _____ & current value of building shown in new balance sheet is _____.

A. Gain ₹ 12,800, Value₹ 1,92,000   B. Loss ₹ 12,800, Value₹ 1,28,000
C. Gain ₹ 16,000, Value₹ 2,00,000   D. Gain ₹ 40,000, Value₹ 2,00,000

5.	The profit earned by a firm after retaining ₹ 15,000 to its reserve was ₹ 75,000. The firm had total tangible assets worth ₹ 10,00,000 and outside liabilities ₹ 3,00,000. The value of the goodwill as per capitalization of average profit method was valued as ₹ 50,000. Determine the rate of Normal Rate of Return.	1

A. 10 %
B. 5 %

	C. 12 %	
	D. 8 %	

6.	Mohit had applied for 900 shares, and was allotted in the ratio 3 : 2. He had paid application money of ₹ 3 per share and couldn't pay allotment money of ₹ 5 per share. First and Final call of ₹ 2 per share was not yet made by the company. His shares were forfeited. The following entry will be passed
	
	  Share Capital A/c Dr. X
	      To Share Forfeited A/c Y
	      To Share Allotment A/c Z
	
	Here X, Y and Z are:
	
	A. ₹ 6,000; ₹ 2,700; ₹ 3,300 B. ₹ 4,800; ₹ 2,700; ₹ 2,100
	C. ₹ 4,800; ₹ 1,800; ₹ 3,000 D. ₹ 6,000; ₹ 1,800; ₹ 4,200
	
	 Or
	A company forfeited 6,000 shares of ₹ 10 each, on which only application money of ₹ 3 has been paid. 4,000 of these shares were re-issued at ₹ 12 per share as fully paid up. Amount of Capital Reserve will be _____.
	
	A. ₹ 18,000 B. ₹ 12,000
	C. ₹ 30,000 D. ₹ 24,000
		1

7.	On 1st April 2019 a company took a loan of ₹80,00,000 on security of land and building. This loan was further secured by issue of 40,000, 12% Debentures of ₹100 each as collateral security. On 31st March 2024 the company defaulted on repayment of the principal amount of this loan consequently on 1st April 2024 the land and building were taken over and sold by the bank for ₹70,00,000. For the balance amount debentures were sold in the market on 1st May 2024. From which date would the interest on debentures become payable by the company? A. 1st April 2019. B. 31st March 2024. C. 1st April 2024. D. 1st May 2024.	1
8.	Rama, a partner took over Machinery of ₹ 50,000 in full settlement of her Loan of ₹ 60,000. Machinery was already transferred to Realisation Account. How it will effect the Realisation Account? <table><tr><td>A. Realisation Account will be credited by ₹ 60,000</td><td>B. Realisation Account will be credited by ₹ 10,000</td></tr><tr><td>C. Realisation Account will be credited by ₹ 50,000</td><td>D. No effect on Realisation Account</td></tr></table> OR Dada, Yuvi and Viru were partners sharing profits and losses in the ratio 3:2:1. Their	1

	books showed Workmen Compensation Reserve of ₹ 1,00,000. Workmen Claim amounted to ₹ 60,000. How it will affect the books of Accounts at the time of dissolution of firm?
	  A. Only ₹ 40,000 will be distributed amongst partner's capital account
	  B. ₹ 1,00,000 will be credited to Realisation Account and ₹ 60,000 will be paid off.
	  C. ₹ 60,000 will be credited to Realisation Account and will be even paid off. Balance ₹ 40,000 will be distributed amongst partners.
	  D. Only ₹ 60,000 will be credited to Realisation Account and will be even paid off	

9.	Ikka, Dukka and Teeka were partners sharing profits and losses in the ratio of 2:2:1. Their fixed Capital balances were ₹ 5,00,000; ₹ 4,00,000 and ₹ 3,00,000 respectively. For the year ended March 31, 2024 profits of ₹ 84,000 were distributed without providing for Interest on Capital @ 10% p.a as per the partnership deed.
	While passing an adjustment entry, which of the following is correct?
	  A. Teeka will be debited by ₹ 4,200
	  B. Teeka will be credited by ₹ 4,200
	  C. Teeka will be credited by ₹ 6,000
	  D. Teeka will be debited by ₹ 6,000
		1

10.	At the time of dissolution Machinery appears at ₹ 10,00,000 and accumulated depreciation for the machinery appears at ₹ 6,00,000 in the balance sheet of a firm. This machine is taken over by a creditor of ₹ 5,40,000 at 5% below the net value. The balance amount of the creditor was paid through bank. By what amount should the bank account be credited for this transaction?
	  A. ₹ 60,000.
	  B. ₹ 1,60,000.
	  C. ₹ 5,40,000.
	  D. ₹ 4,00,000.
		1

11.	Rahul, Samarth and Ayaan were partners sharing profits and losses in the ratio of 5:4:3. Ayaan's fixed Capital balance as on March 31, 2024 was ₹ 2,70,000. Which of the following items would have affected this Capital balance?
	  A. Profit/Loss for the year B. Additional Capital introduced
	  C. Reduction in Capital due to D. Both B and C
	    Capital Adjustment
		1

12.	Shares issued as sweat equity can be
	(I) Issued at par.
	(ii) Issued at discount.
	(iii) Issued at a premium.
	Which of the following is correct?
	
	  A. Only (i) is correct.
	  B. Both (i) and (iii) are correct.
	  C. All are correct.
	  D. Only (ii) is correct.
		1

13.	2,000 shares allotted to Ms. Regal, on which ₹ 80 each called up and ₹ 50 paid were forfeited and reissued for ₹ 70 each as ₹ 90 paid up. Amount transferred to capital	1

	reserve A/c is
	    A. ₹ 1,00,000 **B.** ₹ 60,000
	    C. ₹ 40,000 **D.** ₹ 20,000	

14.	Joey, Sam and Tex were partners sharing profits and losses in the ratio 5:3:2. W.e.f 01 April, 2024 they decided to share future profits and losses in the ratio 2:1:1. For which of the following balances Tex will be credited at the time of reconstitution of firm, if the firm decided to continue with available accumulated profits and losses balances.
	    A. General Reserve ₹ 2,00,000 and Profit and Loss (Dr.) ₹ 1,20,000
	    B. General Reserve ₹ 2,00,000 and Profit and Loss (Cr.) ₹ 2,50,000
	    C. Deferred Revenue Expenditure ₹ 50,000 and Profit and Loss (Cr.) ₹ 80,000
	    D. Deferred Revenue Expenditure ₹ 50,000 and Profit and Loss (Dr.) ₹ 80,000
		1

15.	Rohit, Virat and Shikhar were partners sharing profits and losses in the ratio 3:1:1. Their Capital balance as on March 31, 2024 was ₹ 3,00,000; ₹ 2,70,000 and ₹ 2,50,000 respectively. On the same date, they admitted Hardik as a new partner for 20% share. Hardik was to bring ₹ 80,000 for his share of goodwill and 1/5 of the combined capital of all the partners of new firm. What will be the total amount brought in by Hardik on his admission as a new partner?
	    A. ₹ 2,25,000 **B.** ₹ 1,80,000
	    C. ₹ 2,60,000 **D.** ₹ 3,05,000
	                         E.
	
	OR
	
	A, B and C were partners sharing profits and losses equally. B died on 31 August, 2023 and total amount transferred to B's executors was ₹ 13,20,000. B's executors were being paid ₹ 1,20,000 immediately and balance was to be paid in four equal semi-annual instalments together with interest @ 10% p.a. Total amount of interest to be credited to B's executors Account for the year ended March 31, 2024 will be?
	    A. ₹ 70,000 **B.** ₹ 67,500
	    C. ₹ 60,000 **D.** ₹ 77,000
		1

16.	String and Kite were partners sharing profits and losses in the ratio 5:3. They admitted spinner as a new partner. String sacrificed ¼ from his share and Kite sacrificed 1/6 of his share. What will be the new ratio?
	    A. 6:5:5 **B.** 9:5:10
	    C. 15:10:7 **D.** 35:21:40
		1

17.	Rusting, a partner of a firm under dissolution was to get a remuneration 2% of the total assets realised other than cash and 10% of the amount distributed to the partners. Sundry assets (including Cash ₹ 8,000) realised at ₹ 1,16,000 and sundry liabilities to be paid ₹ 31,340. Calculate Rustings's remuneration and Show your workings clearly. Also pass necessary journal entry for remuneration.	3
18.	A, B and C were partners sharing profits, and losses in the ratio of 2:2:1. C died on 1st July, 2023 on which date the capitals of A, B and C after all necessary adjustments stood at ₹74,000, ₹ 6,750 and 42,250 respectively. A and B continued to carry on the business for six months without settling the accounts of C. During the period of six months from 1 -7-2023, a profit of ₹ 20,500 is earned using the firm's property. State	3

	which of the two options available u/s 37 of the Indian Partnership Act, 1932 should be exercised by executors of C and why?.	
	Or	
	Amit and Kartik are partners sharing profits and losses equally. They decided to admit Saurabh for an equal share in the profits. For this purpose, the goodwill of the firm was to be valued at four years' purchase of super profits.	
	The Balance Sheet of the firm on Saurabh's admission was as follows:	

Liabilities		Amount (₹)	Assets	Amount(₹)
Capital Accounts			Fixed Assets (Tangible)	75,000
Amit	90,000		Furniture	15,000
Kartik	50,000	1,40,000	Stock	30,000
Creditors		5,000	Debtors	20,000
General Reserve		20,000	Cash	50,000
Bills payable		25,000		
		1,90,000		1,90,000

	The normal rate of return is 12% p.a. Average profit of the firm for the last four years was ₹30,000. Calculate Saurabh's share of goodwill.	
19.	Buddha Limited took over assets of ₹ 40,00,000 and liabilities of ₹ 6,50,000 of Ginny Limited. Buddha Limited issued 30,000, 8% Debentures of ₹ 100 each at 10% discount, to be redeemed at 5% premium along with cheque of ₹ 5,00,000. Pass necessary journal entries in the books of Buddha Ltd.	3
	Or	
	A company forfeited 8,000 shares of ₹ 10 each on which ₹ 8 were called (including ₹ 1 premium) and ₹ 6 was paid (including ₹ 1 premium). Out of these 5,000 shares were re-issued at maximum possible discount. Pass necessary journal entries.	
20.	Bat, Cat and Rat were partners sharing profits and losses in the ratio 5:3:2. Cat retired and on that date there was a balance of Investment of ₹ 4,00,000 and Investment Fluctuation Reserve of ₹ 1,00,000 was appearing in the balance sheet.	3
	Pass necessary journal entries for Investment Fluctuation reserve in the following cases.	
	(i) Market Value of Investments was ₹ 4,80,000.	
	(ii) Market Value of Investments was ₹ 3,80,000.	
	(iii) Market Value of Investments was ₹ 2,90,000	
21.	A company forfeited certain number of shares of Face Value ₹ 10 each, for non-payment of final call money of ₹ 4. These shares were reissued at a discount of ₹ 5 and amount of ₹ 4500 was transferred to capital Reserve account. Pass the necessary journal entries to show the above transactions and prepare Share forfeited account.	4
22.	X, Y and Z were partners sharing profits and losses equally. Y died on 1st October, 2023 and total amount transferred to Y's executors was ₹ 15,60,000. Y's executors were being paid ₹ 3,60,000 immediately and balance was to be paid in four equal quarterly instalments, together with Interest @ 6% p.a. Pass entries till payment of first two	4

		instalments.	
23.		K.N. Ltd. invited applications for issuing 6,00,000 equity shares of ₹10 each at a premium of ₹3 per share. The amount was payable as follows: On Application and Allotment - ₹3 per share; On First Call -₹4 per share; On Second and Final Call — Balance (including premium). The issue was oversubscribed by 1,50,000 shares. Applications for 50,000 shares were rejected and the application money was refunded. Shares were allotted to the remaining applicants as follows:	6
		Category I: Those who had applied for 4,00,000 shares were allotted 3,00,000 shares on pro- rata basis.	
		Category II: The remaining applicants were allotted the remaining shares.	
		Excess application money received with applications was adjusted towards sums due on first call. Rakesh to whom 6,000 shares were allotted (out of Category I) failed to pay the first call money. His shares were forfeited. The forfeited shares were re-issued at ₹13 per share fully paid up after the second call. Pass necessary journal entries for the above transactions in the books of K.N. Ltd.	
		OR	
		a) Pass the necessary journal entries for 'Issue of Debenture' for the following:	
		i. Arman Ltd. issued 750, 12% Debentures of ₹100 each at a discount of 10% redeemable at a premium of 5%.	
		ii. Sohan Ltd. issued 800, 9% Debentures of ₹100 each at a premium of 20 per debenture redeemable at a premium of ₹10 per Debenture.	
		b) X Ltd. obtained a loan of ₹4,00,000 from IDBI Bank. The company issued 5,000 9%. Debentures of ₹100 each as a collateral security for the same. Show how these items will be presented in the Balance Sheet of the company.	
24.		Meghna, Mehak and Mandeep were partners in a firm whose Balance Sheet as on 31st March, 2023 was as under:	6

<div align="center">Balance Sheet</div>

Liabilities		Amount	*Assets*	Amount
Creditors		28,000	Cash	27,000
General Reserve		7,500	Debtors	20,000
Capitals:			Stock	28,000
Meghna	20,000		Furniture	5,000
Mehak	14,500			
Mandeep	10,000	44,500		
		80,000		**80,000**

Mehak retired on this date under following terms:
- **(i)** To reduce stock and furniture by 5% and 10% respectively.
- **(ii)** To provide for doubtful debts at 10% on debtors.
- **(iii)** Goodwill was valued at `12,000.
- **(iv)** Creditors of Rs.8,000 were settled at Rs.7,100.
- **(v)** Mehak should be paid off and the entire sum payable to Mehak shall be brought in by Meghna and Mandeep in such a way that their capitals should be in their new profit-sharing ratio and a balance of Rs.25,000 is maintained in the cash account.

Prepare Revaluation Account and partners' capital accounts of the new firm.

Or

Varun and Vivek were partners in a firm sharing profits in the ratio of 3:2. The balance in their capital and current accounts as on 1ˢᵗ April, 2022 were as under:

Particulars	Varun(₹)	Vivek(₹)
Capital accounts	3,00,000 (Cr.)	2,00,000 (Cr.)
Current accounts	1,00,000 (Cr.)	28,000 (Dr)

The partnership deed provided that Varun was to be paid a salary of ₹ 5,000 p.m. whereas Vivek was to get a commission of ₹ 30,000 for the year. Interest on capital was to be allowed @ 8% p.a. whereas interest on drawings was to be charged @ 6% p.a. The drawings of Varun were ₹ 3,000 at the beginning of each quarter while Vivek withdrew ₹ 30,000 on 1ˢᵗ September, 2022. The net profit of the firm for the year, 2022-23, before making the above adjustments was ₹ 1,20,000.
Prepare Profit and Loss Appropriation Account and Partners' Capital and Current Accounts.

25. Sunny and Bobby were partners in a firm sharing profits and losses in the ratio of 3:2, their balance sheet as at 31st March, 2012:

6

Liabilities	Amount	Assets		Amount
Creditors	1,90,000	Bank		5,000
Bills Payable	1,10,000	Fixed Deposits		70,000
Employees provident fund	50,000	Stock		86,000
Mrs. Sunny's Loan	55,000	Investments		1,04,000
Bobby's Loan	85,000	Debtors	1,77,000	
Investment Fluctuation Fund	30,000	(-) Provision for D/D	12,000	1,65,000
Capitals:		Other Fixed Assets		3,80,000
Sunny	2,20,000	Deferred Revenue Expenditure		35,000
Bobby	1,20,000	3,40,000	Sunny's Loan		15,000
	8,60,000			**8,60,000**

The firm was dissolved on 31st March, 2012. The assets were realized and the liabilities were paid as under:

(a) Sunny promised to pay off Mrs. Sunny's Loan
(b) Bobby took away stock at 20% discount and 80% of the investments at 10% discount.
(c) Dharam, a debtor of Rs. 60,000 had to pay the amount due 2 months after the date of dissolution. He was allowed a discount of 9% p.a. for making immediate payment.
(d) Creditors were paid Rs.1,75,000 in full settlement of their claim.
(e) 90% of Other fixed assets realised Rs. 1,98,000 and remaining were realised at discount of 15%.
(f) Balance of investments were sold at 75% value and Fixed Deposits were realised at110%.
(g) There was an old furniture which has been written off completely from the books, Bobby took away the same for Rs. 41,000 against his loan and balance to

		him was given in cash.
		(h) Realisation expenses Rs. 20,000 were paid by Sunny and Bobby equally on behalf of the firm.
		You are required to prepare Realisation A/c

26.	6

Balance Sheet (Extract)

Of XYZEE ltd as at 31.03.2024 (as per schedule -III of Companies Act 2013)

	Note no.	31.03.2023	31.03.2024
I- Equity & Liabilities			
1. Shareholders Funds			
a). Share Capital	1	44,90,000	54,90,000
b). Reserves and Surplus	2	2,00,000	3,60,000

Note no.1 (For year ending 31.03.2023)

Share Capital

1). Authorised Share Capital		
8,00,000 Equity Shares of Rs. 10 each		80,00,000
2). Issued Share Capital		
4,50,000 Equity Shares of Rs. 10 each		45,00,000
3). Called Up Share Capital		
a). Called Up and Fully paid		
Rs.10 per share on 4,45,000 Equity Shares	44,50,000	
b). Called Up and not Fully paid		
Rs. 10 per share on 5,000 Equity shares	50,000	
Less not paid: Rs. 2 per share on 5,000 Equity shares	-10,000	44,90,000

Note no.1 (For year ending 31.03.2024)

Share Capital

1). Authorised Share Capital		
8,00,000 Equity Shares of Rs. 10 each		80,00,000
2). Issued Share Capital		
5,50,000 Equity Shares of Rs. 10 each		55,00,000
(Out of these 40,000 shares were issued to the vendors as consideration for Capital asset purchased)		
3). Called Up Share Capital		
a). Called Up and Fully paid		

Rs.10 per share on 5,45,000 Equity Shares	54,50,000	
b). Called Up and not Fully paid		
Rs. 10 per share on 5,000 Equity shares	50,000	
Less not paid: Rs. 2 per share on 5,000 Equity shares	-10,000	54,90,000

Note no. 2 - Reserves and Surplus		
	31.03.2023	31.03.2024
Capital Reserve	Nil	40,000
Securities Premium	2,00,000	3,20,000

During the year the company took over the business of Quipa Ltd. with Assets of Rs. 12,00,000/- and Liabilities of Rs.7,30,000. Purchase consideration was paid in cash and by issue of equity shares at par. The entire transaction resulted in Capital reserve of Rs.40,000.

Q1. What is the total face value of Shares issued for Cash by the Company during the year 2023-24.
A). Rs.10,00,000
B). Rs. 6,00,000
C). Rs. 9,50,000
D). Rs. 11,20,000

Q2. Shares issued for cash during the year were issued at _____. (assuming they were issued together)?
A). Rs.10
B). Rs.8
C). Rs.12
D). Rs.11.20

Q3. On April 1, 2024, the company forfeited all the defaulting shares. What amount will appear in the Share Forfeiture account at the time of forfeiture?
A). Rs.40,000
B). Rs. 50,000
C). Rs.10,000
D). Rs. 60,000

Q4. What will be the number of Issued shares, as on April 1,2024, after the forfeiture of these shares?
A). 5,45,000 shares
B). 5,50,000 shares.
C). 4,45,000 shares.
D). 5,05,000 shares.

	Q5. If 2,000 of the forfeited shares were issued at Rs. 14 per share, what will be the amount of securities premium and Capital reserve respectively as on April 1, 2024? A). Rs, 3,20,000, Rs.40,000 B). Rs.3,28,000, Rs.56,000 C). Rs.3,28,000, Rs.80,000 D). Rs.3,20,000, Rs.80,000 Q6. What will be the amount in the "Called up and Fully paid" subhead after the reissue of these 2000 shares? A). Rs.54,50,000 B). Rs.55,00,000 C). Rs.54,70,000 D). Rs.54,80,000	

Part B :- Analysis of Financial Statements
(Option – I)

27.	When an analyst analysis the financial statements of an enterprise over a number of years, the analysis is called _____analysis.
	    A. Static
	    B. External
	    C. Horizontal
	    D. Vertical
	             OR
	------------will result in increase in Liquid Ratio without affecting the Current Ratio.
	    A. Sale of Stock at cost price
	    B. Sale of stock at loss
	    C. Sale of stock at profit
	    D. Sale of investments at cost
		1

28.	As on 31.02.2024 the following information of Bartan Manfacturing ltd. is available .
	        Net profit ratio 40%
	        Operating profit ratio 50%
	On 1st April 2024 it was came to notice that the accountant had omitted recording the interest received on investment of Rs. 2,00,000 for the financial year 2023-24. The required rectification was done. What will be the effect of the same on Net Profit and operating profit ratio?
	    A. Net Profit ratio will increase and Operating Profit ratio will decrease
	    B. Both Net Profit ratio and Operating Profit ratio will increase
	    C. Net Profit ratio will increase and Operating Profit ratio will have no change
	    D. Net Profit ratio will remain same and Operating Profit ratio will increase
		1

29.	While computing cash from operating activities, which of the following item(s) will be added to the net profit?
	       (i) Decrease in value of inventory
	       (j) Increase in share capital
		1

	(k) Increase in the value of trade receivables	
	(l) Increase in the amount of outstanding expenses	
	A. Only (i)	
	B. Only (i) and (ii)	
	C. Only (i) and (iii)	
	D. Only (i) and (iv)	

<div align="center">OR</div>

Which of the following statements is incorrect?

A. Investments in shares are excluded from cash equivalents unless they are in substantial cash equivalents.

B. Short-term marketable securities which can be readily converted into cash are treated as cash equivalents

C. In case of a financial enterprise, interest received and dividend received are classified as operating activities while dividend paid and interest paid are financing activities.

D. Dividend tax, i.e., tax paid on dividend should be classified as financing activity along with dividend paid.

30.	**Statement-I:** 'Shree Ltd.' was carrying on a business of packaging in Delhi and earned good profits in the past years. The company wanted to expand its business and required additional funds. To meet its requirements the company issued equity shares of ₹30,00,000. It purchased a computerized machine of ₹20,00,000. During the current year the Net Profit of the company was ₹15,00,000. Cash flows from operating, investing and financing activities from the above transactions will be ₹15,00,000: (₹20,00,000); ₹30,00,000 respectively. **Statement-II:** The patents of X Ltd. increased from ₹3,00,000 in 2021-22 to ₹3,50,000 in 2022-23. It will be taken as purchase of Patents of 50,000 and will be shown under Cash outflow from Investing Activities. A. Both the statements are true. B. Both the statements are false. C. Only Statement-I is true. D. Only Statement-II is true.	1
31.	Find the heads and sub-heads under which the following items will appear in the balance sheet of a company as per Schedule III, Part I of Companies Act, 2013? a) Furniture and Fixture b) Advance paid to contractor for building under construction c) Accrued Income d) Loans repayable on demand to Bank e) Employees earned leaves payable on retirement f) Employees earned leaves encash able	3
32.	Complete the Comparative Statement of Profit and Loss:	3

Particulars	2022-23	2023-24	Absolute change	% change

Revenue from Operations	16,00,000	20,00,000	?	?
Less: Employees Benefit Expenses	8,00,000	?	?	25%
Less: Other Expenses	2,00,000	?	(1,00,000)	?
Profit before tax	6,00,000	?	?	50%
Tax @30%	?	?	90,000	?
Profit after tax	4,20,000	?	2,10,000	?

33.	Calculate Gross Profit Ratio from the following information Revenue from Operations ₹ 10,00,000; Purchases ₹ 3,60,000; Carriage Inwards ₹ 50,000; Employee benefit Expenses ₹ 1,00,000 (including Wages of ₹ 60,000); Opening Inventory ₹ 60,000 and Average Inventory ₹ 80,000. OR Profit after tax amounted to ₹ 6,00,000, and tax rate was 20%. If earnings before interest and tax was ₹ 10,00,000 and Nominal Value of Debentures amounted to ₹ 25,00,000 (assuming the only debt of the company), determine the rate of interest on debentures	4
34.	(a) From the following information, calculate Cash flow from Operating Activities. 	Particulars	31 March 2023	31 March 2024
Surplus i.e Balance in Statement of Profit and Loss	6,00,000	5,00,000
Provision for Tax	1,00,000	1,20,000
Trade Receivables	2,00,000	2,40,000
Trade Payables	1,50,000	2,00,000
Goodwill	2,00,000	1,50,000 | Additional Information:- Proposed Dividend for the year ended March 31, 2023 and March 31, 2024 was ₹ 1,50,000 and ₹ 1,80,000 respectively. (b) From the following information calculate the Cash from Investing Activities | Particulars	31 March 2023	31 March 2024
Machinery (Cost)	20,00,000	28,00,000

Accumulated Depreciation	4,00,000	6,50,000	
			
			Additional Information:-
			    (i) Machinery costing ₹ 50,000 (Book Value ₹ 40,000) was lost by fire and insurance claim of ₹ 32,000 was received.
			    (ii) Depreciation charged during the year was ₹ 3,50,000.
			    (iii) A part of Machinery costing ₹ 2,50,000 was sold at a loss of ₹ 20,000.
				6

<div align="center">

Part B :- Computerised Accounting
(Option – II)

</div>

27.	The syntax of PMT Function is _____
	    A. PMT (rate, pv, nper, [fv], [type])
	    B. PMT (rate, nper, pv, [fv], [type])
	    C. PMT (rate, pv, nper, [type], [fv])
	    D. PMT (rate, nper, pv, [type], [fv])
		1

	Or	
	In Excel, the chart tools provide three different options _____, _____ and _____ for formatting. A. Layout, Format, DataMaker B. Design, Layout, Format C. Format, Layout, Label D. Design, DataMaker, Layout	
28.	Which formulae would result in TRUE if C4 is less than 10 and D4 is less than 100? A. =AND(C4>10, D4>10) B. =AND(C4>10, C4<100). C. =AND(C4>10, D4<10). D. =AND (C4<10, D4,100)	1
29.	Which function results can be displayed in Auto Calculate? A. SUM and AVERAGE B. MAX and LOOK C. LABEL and AVERAGE D. MIN and BLANK <center>**Or**</center> When navigating in a workbook, which command is used to move to the beginning of the current row? A. [Ctrl]+[Home] B. [Page Up] C. [Home] D. [Ctrl]+[Backspace]	1
30.	What category of functions is used in this formula: =PMT (C10/12, C8, C9,1) A. Logical B. Financial C. Payment D. Statistical	1
31.	State any three types of Accounting Vouchers used for entry.	3
32.	State any three requirements which should be considered before making an investing decision to choose between 'Desktop database' or 'Server database'.	3
33.	State the features of Computerized Accounting system. <center>**Or**</center> Explain the use of 'Conditional Formatting'.	4
34.	Describe two basic methods of charging depreciation. Differentiate between both of them.	6

PART A

(Accounting for Partnership Firms and Companies)

S.No.	Question	Marks
	Part A :- Accounting for Partnership Firms and Companies	
1.	B- ₹ 1,20,000	1
2.	D - A is false but R is true	1
3.	C - Subscribed OR B 5 %	1

4.	A -
	  Bad Debts A/c Dr. 15,000
	    To Debtors A/c 15,000
	  Prov. for Doubtful Debts A/c Dr. 15,000
	    To Bad Debts A/c 15,000
	
	OR
	
	C - Gain ₹ 16,000, ₹ 2,00,000
		1

5.	C - 12 %	1
6.	B- ₹ 4,800; ₹ 2,700; ₹ 2,100 Or B -₹ 12,000	1
7.	D - 1st May 2024	1
8.	A - Realisation Account will be credited by ₹ 60,000 OR C- ₹ 60,000 will be credited to Realisation Account and will be even paid off. Balance ₹ 40,000 will be distributed amongst partners	1
9.	B - Teeka will be credited by ₹ 4,200	1
10.	B - ₹ 1,60,000	1
11.	D - Both B and C	1
12.	C - All are correct	1
13.	B - ₹ 60,000	1
14.	D - Deferred Revenue Expenditure ₹ 50,000 and Profit and Loss (Dr.) ₹ 80,000	1
15.	A - ₹ 2,25,000 OR B - ₹ 67,500	1
16.	A - 6:5:5	1
17.	Assets realised = ₹ 1,08,000 Commission @ 2% = 2,160 Amount payable to other partners = 1,16,000 – 31,340 = 84,660 10% of amount payable = 8,466	3

	Total Commission = 2,160 + 8,460 = ₹ 10,626			
	Date	Particulars	Debit (₹)	Credit (₹)
	(i)	Realisation A/c Dr. To Rusting's Capital Account (Being remuneration payable to partner)	10,626	10,626

18.	(i) Share in the subsequent profits attributable to the use of his balance.
	₹ 42,250 x 20,500
	   ₹1,80,000
	
	= ₹ 4,812
	
	(ii) Interest @ 6% p.a. on the use of his balance = ₹ 42,250 x 6/12 x 6/100 = ₹ 1,267.50
	
	C should exercise option (i) since the amount payable to him under this option is more as compared to the amount payable to him under option (ii).
	
	                Or
	
	Capital of Firm = 1,40,000+20,000 (Reserve) = ₹1,60,000
	
	Normal Profit = 1,60,000 x 12/100 = ₹19,200
	
	Average Profit = ₹30,000
	
	Super Profit = Average Profit-Normal Profit = 30,000-19,200 = ₹10,800
	Goodwill = 4 (Super Profit) = 4 (10,800) = ₹43,200
	
	Saurabh's share of Goodwill = 1/3 of 43,200= ₹14,400.
		3

19.   **Journal**   3

Date	Particulars		Debit	Credit
	Assets A/c	Dr	40,00,000	
	To Liabilities A/c			6,50,000
	To Ginny Ltd. A/c			32,00,000
	To Capital Reserve A/c			1,50,000
	(Being Business taken over and capital reserve recorded)			
	Ginny Limited A/c	Dr	32,00,000	
	Loss on Issue of Debentures A/c	Dr	4,50,000	
	To 8% Debentures A/c			30,00,000
	To Premium on redemption of Debentures			1,50,000
	To Bank A/c			5,00,000
	(Being purchased consideration discharged)			

Or

Journal

Date	Particulars		Debit	Credit
	Share Capital A/c	Dr	56,000	
	To Shares Forfeited A/c			40,000
	To Calls in arrears A/c			16,000
	(Being Shares forfeited)			
	Bank A/c	Dr	10,000	
	Shares Forfeited A/c	Dr	25,000	
	To Share Capital A/c			35,000
	(Being 5000 shares reissued at discount)			

20.

Journal

3

Date	Particulars		Debit	Credit
(i)	Investment Fluctuation Reserve A/c Dr		1,00,000	
	To Bat's capital A/c			50,000
	To Cat's capital A/c			30,000
	To Rat's capital A/c			20,000
	(Being Invest. Fluctuation Reserve distributed)			
	Investment A/c	Dr	80,000	
	To Revaluation A/c			80,000
	(Being Increase in investment recorded)			
	Revaluation A/c	Dr	80,000	
	To Bat capital A/c			40,000
	To Cat capital A/c			24,000
	To Rat capital A/c			16,000
	(Being Gain on revaluation transferred to partners)			
(ii)	Investment Fluctuation Reserve A/c Dr		1,00,000	
	To Bat's capital A/c			40,000
	To Cat's capital A/c			24,000
	To Rat's capital A/c			16,000
	To Investment A/c			20,000
	(Being decrease in investment recorded and balance Invest. Fluctuation Reserve distributed)			
(ili)	Investment Fluctuation Reserve A/c Dr		1,00,000	
	Revaluation A/c	Dr	10,000	
	To Investment A/c			1,10,000
	(Being decrease in investment recorded)			

		Bat's capital A/c	Dr	5,000			
		Cat's capital A/c	Dr	3,000			
		Rat's capital A/c	Dr	2,000			
		To Revaluation A/c			10,000		
		(Being Loss on revaluation distributed among the partners)					

21.		**Journal**					4

Date	Particulars	Debit	Credit
	Share capital A/c　　　　　　Dr	45,000	
	To Forfeited shares A/c		27,000
	To share final call A/c		18,000
	(Being 4500 shares forfeited)		
	Bank A/c　　　　　　Dr	22,500	
	Forfeited shares A/c　　　　　　Dr	22,500	
	To Share Capital A/c		45,000
	(Being 4500 shares reissued)		
	Forfeited share A/c　　　　　　Dr	4,500	
	To Capital reserve A/c		4,500
	(Being balance of share forfeiture transferred to Capital reserve)		

Dr.	Share Forfeiture A/c			Cr.
Particulars	Amount	Particulars	Amount
To Share Capital A/c	22,500	By Share Capital	27,000
To Capital Reserve A/c	4,500		
	27,000		27,000

		Journal					4
22.							
	Date	Particulars		Debit	Credit		
	1.10.2023	Y's Capital A/c Dr		15,60,000			
		To Y's Executors A/c			15,60,000		
		(Being balance in capital transferred to executors account)					
	1.10.2023	Y's Executors A/c Dr		3,60,000			
		To Banks A/c			3,60,000		
		(Being payment made to the executor)					
	31.12.2023	Interest A/c Dr		18,000			
		To Y's Executor's A/c			18,000		
		(Being Interest due)					
	31.12.2023	Y's Executors A/c Dr		3,18,000			
		To Banks A/c			3,18,000		
		(Being payment made to the executor)					
	31.03.2024	Interest A/c Dr		13,500			
		To Y's Executor's A/c			13,500		
		(Being Interest due)					
	31.03.2024	Y's Executors A/c Dr		3,13,500			
		To Banks A/c			3,13,500		
		(Being payment made to the executor)					

		Journal					6
23.							
	Date	Particulars		Debit	Credit		
		Bank A/c Dr		22,50,000			
		To Share Application and allotment A/c			22,50,000		
		(Being Application and allotment money received)					
		Share Application and allotment A/c Dr		22,50,000			
		To Equity Share Capital A/c			18,00,000		
		To Share First call A/c			3,00,000		
		To Bank A/c			1,50,000		
		(Being application and allotment money adjusted and excess refunded)					

			Dr	Cr
	Share 1st Call A/c Dr	24,00,000		
	To Equity Share Capital A/c		24,00,000	
	(Being call money due)			
	Bank A/c Dr	20,82,000		
	Calls In arrears A/c Dr	18,000		
	To Share 1st Call A/c		21,00,000	
	(Being call money received except on 6,000 shares)			
	Share Capital A/c Dr	42,000		
	To Shares Forfeited A/c		24,000	
	To Calls in arrears		18,000	
	(Being 6000 shares forfeited)			
	Share 2nd Call A/c Dr	35,64,000		
	To Share Capital A/c		17,82,000	
	To Securities Premium A/c		17,82,000	
	(Being 2nd Call money due)			
	Bank A/c Dr	35,64,000		
	To Share 2nd Call A/c		35,64,000	
	(Being 2nd Call money received)			
	Bank A/c Dr	78,000		
	To Share Capital A/c		60,000	
	To Securities Premium A/c		18,000	
	(Being forfeited shares reissued)			
	Shares Forfeited A/c Dr	24,000		
	To Capital Reserve A/c		24,000	
	(Being balance transferred to capital reserve)			

OR

Journal

Date	Particulars	Debit	Credit
A (i)	Bank A/c Dr	67,500	
	To Debenture Application and allotment A/c		67,500
	(Being applications received)		
	Debenture Application and allotment A/c Dr	67,500	
	Loss on issue of Debntures A/c Dr	11,250	
	To 12% Debentures A/c		75,000

		To Premium redemption of debentures A/c (Being Debentures issued at discount redeemable at premium)		3,750	
	A(ii)	Bank A/c Dr To Debenture Application and allotment A/c (Being applications received)	96,000	96,000	
		Debenture Application and allotment A/c Dr Loss on issue of Debentures A/c Dr To 12% Debentures A/c To Securities Premium A/c To Premium on Redemption A/c (Being Debentures issued at discount redeemable at premium)	96,000 8,000	80,000 16,000 8,000	

23 B)   Balance sheet Extract of X Ltd

_____

Particulars	Note no.	Rs

1. Equity &Liabilities
   Non current liabilities
   Long term borrowings
	1	4,00,000

_____

Notes to accounts

_____

1. Long term borrowings
   Loan from IDBI
   (Secured by issue of 5000, 9% debentures of
    Rs.100 each as collateral security)
		4,00,000
		_____

24.

Dr   **Revaluation A/c**   Cr

Particulars	Amount	*Particular*	Amount
To Stock A/c	1,400	By Creditors A/c	900
To Furniture A/c	500	By Loss transferred to:	
To Provision for doubtful debts	2,000	Meghna 1,000 Mehak 1,000 Mandeep 1,000	3,000
	3,900		3,900

Dr   **Partner Capital Account**   Cr

	Meghna	Mehak	Mandeep		Meghna	Mehak	Mandeep

6

Particulars				Particulars			
To Revaluation	1,000	1,000	1,000	By Balance b/d	20,000	14,500	10,000
To Mehak	2,000	-	2,000	By General Reserve	2,500	2,500	2,500
To Cash	--	20,000	--	By Meghna	--	2,000	
To Balance c/d	27,050	--	27,050	By Mandeep		2,000	
				By Cash	7,550	--	17,550
	30,050	21,000	30,050		30,050	21,000	30,050

Or

Profit & Loss appropriation A/c
Of Varun and Vivek For the year ended on March 31, 2023

Dr   Cr

Particulars	Amount	Particulars	Amount
To Partners Current A/c		By Profit & Loss A/c - Net Profit	1,20,000
Varun	78,508	By Interest on Drawings	
Vivek	42,992	Varun	450
		Vivek	1,050
	1,21,500		1,21,500

- As divisible profits are insufficient, so available profits are distributed in ratio of appropriations i.e 42:23

Partner's capital A/c

Dr   Cr

Particulars	Varun	Vivek	Particulars	Varun	Vivek
To Balance c/d	3,00,000	2,00,000	By Balance b/d	3,00,000	2,00,000
	3,00,000	2,00,000		3,00,000	2,00,000

Partner's Current A/c

Dr   Cr

Particulars	Varun	Vivek	Particulars	Varun	Vivek
To Balance b/d		28,000	By Balance b/d	1,00,000	

	To Drawings	12,000	30,000	By Profit and Loss Appropriation A/c	78,508	42,992	
	To Interest on Drawings	450	1,050	By Balance c/d		16,058	
	To Balance c/d	1,66,058					
		1,78,508	59,050		1,78,508	59,050	

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25. | 6

Realisation Account

Dr   Cr

Particulars		Amount	Particulars		Amount
To Fixed Deposits		70,000	By Provision for Doubt. Debts		12,000
To Stock		86,000	By Bills Payable		1,10,000
To Investments		1,04,000	By Creditors		1,90,000
To Debtors		1,77,000	By Employees provident fund		50,000
To Other fixed assets		3,80,000	By Mrs. Sunny's Loan		55,000
To Sunny's Capital A/c (Loan repaid)		55,000	By Investment fluctuation fund		30,000
To Bank A/c			By Bank A/c		
Creditors	1,75,000		Debtors	1,76,100	
Bills Payable	1,10,000		Other Fixed assets	2,30,300	
Emp prov fund	50,000	3,35,000	Investments	15,600	
To Sunny's Capital A/c – Expense		10,000	Fixed deposits	77,000	4,99,000
To Bobby's Capital A/c – Expense		10,000	By Bobby's Capital A/c		1,43,680
			By Bobby's Loan A/c		41,000
			By Partners Capital A/c - Loss on real.		
			Bobby	57,792	
			Sunny	38,528	96,320
		12,27,000			12,27,000

A26. | 6

Q1.   A). Rs.10,00,000

Q2.   C). Rs.12

Q3.   A). Rs.40,000

Q4.   B). 5,50,000 shares

Q5.   B). Rs.3,28,000, Rs.56,000

Q6.   C). Rs.54,70,000

Part B :- Analysis of Financial Statements
(Option – I)

27.	C - Horizontal	1
	Or	
	A - Sale of Stock at cost price	

28.	C- Net Profit ratio will increase and Operating Profit ratio will have no change	
29.	D - Only (i) and (iv)	1
	OR	
	A - Investments in shares are excluded from cash equivalents unless they are in substantial cash equivalents.	
30.	**A.** - Both the statements are true.	1

31.		1

Items	Heading	Sub-Heading
Furniture and Fixture	Non-Current Assets	Property, Plant & Equipment
Advance paid to contractor for building under construction	Non-Current Assets	Long-Term Loans & Advances
Accrued Income	Current Assets	Other Current Assets
Loans repayable on demand to Bank	Current Liabilities	Short Term Borrowings
Employees earned leaves payable on retirement	Non-Current Liabilities	Long Term Provisions
Employees earned leaves encashable	Current Liabilities	Short Term Provisions

32.	**Comparative Income Statement**	3

Particulars	2022-23	2023-24	Absolute change	% change
Revenue from Operations	16,00,000	20,00,000	4,00,000	25%
Less: Employees Benefit Expenses	8,00,000	10,00,000	2,00,000	25%
Less: Other Expenses	2,00,000	1,00,000	(1,00,000)	(50%)
Profit before tax	6,00,000	9,00,000	3,00,000	50%
Tax @30%	1,80,000	2,70,000	90,000	50%
Profit after tax	4,20,000	6,30,000	2,10,000	50%

33.	Gross Profit Ratio = Gross Profit / Revenue from Operations * 100	3
	Revenue from Operations = Rs 10,00,000	
	Gross Profit = Revenue from Operations – Cost of Revenue from Operations	

Cost of Revenue from Operations = Purchases + Opening Inventory + Direct Expenses – Closing Inventory
= 3,60,000 + 60,000 + 50,000 + 60,000 – 1,00,000 = 4,30,000

(Average Inventory = Opening Inventory + Closing Inventory / 2
80,000 = 60,000 + Closing Inventory / 2
Closing Inventory = 1,00,000)
Gross Profit = 10,00,000 – 4,30,000 = 5,70,000
Gross Profit Ratio = 5,70,000/10,00,000 * 100 = 57%

OR

Net Profit Before Interest & Tax = Profit after Tax + Tax + Interest

(Tax = 6,00,000 * 20/80 = 1,50,000)

10,00,000 = 6,00,000 + 1,50,000 + Interest
Interest = Rs 2,50,000

Interest on Debentures = Nominal value of Debentures * Rate of Interest/100
2,50,000 = 25,00,000 * Rate of Interest/100
Rate of Interest (R) = 10%

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34. (a) CASH FLOW FROM OPERATING ACTIVITIES | | 4

Particulars	Details	Amount
Profit Earned during the year	(1,00,000)	
Add: Proposed dividend of previous year	1,50,000	
Provision for tax for current year	1,20,000	
Profit before tax and extraordinary items	1,70,000	
Non-operating and Non Cash Items:		
Add: Goodwill amortised	50,000	
Operating profit before tax and changes in working capital	2,20,000	
Add: Increase in trade payable	50,000	
Less: increase in trade receivables	(40,000)	
Cash generated from operations	2,30,000	
Less: Income tax paid	1,00,000	
Cash flow from operating activities		1,30,000

OR

Dr   Accumulated Depreciation A/c   Cr

Particulars	Amount	Particulars	Amount

To Machinery A/c (prev. dep on machine damaged)	10,000	By Balance b/d	4,00,000	
To Machinery A/c (prev. dep on machine sold)	90,000	By Depreciation A/c (Charged during the year)	3,50,000	
To Balance c/d	6,50,000			
	7,50,000		7,50,000	

Dr		Machinery A/c		Cr
Particulars	Amount	Particulars	Amount	
To Balance b/d	20,00,000	By Accumulated Depreciation A/c	10,000	
To Bank A/c (Balancing figure)	11,00,000	By Insurance Company A/c	32,000	
		By loss by fire A/c	8,000	
		By Bank A/c	1,40,000	
		By Loss on Sale A/c	20,000	
		BY Accumulated Depreciation A/c	90,000	
		By Balance c/d	28,00,000	
	31,00,000		31,00,000	

Investing Activities

Sale of Machinery	1,40,000
Claim received from Insurance Company	32,000
Machinery Purchased	(11,00,000)
Cash Outflow from Investing Activities	(9,28,000)

Part B :- Computerised Accounting
(Option – II)

27. B. PMT (rate, nper, pv, [fv], [type])

OR

B. Design, Layout, Format — 1

28. A. =AND (C4<10, D4,100) — 1

29. A. SUM and AVERAGE

Or

A. [Ctrl]+[Home] — 1

30. B. Financial — 1

31. Contra Voucher
Receipt Vouchers
Payment Vouchers
Purchase Vouchers — 3

32.	Three considerations —scalability, collaboration/accessibility, and security/data integrity—play a crucial role in determining the suitability regarding a desktop database or a server database as the right investment for any organization	3
33.	Simple and Integrated Accuracy & Speed Scalability Instant Reporting Security Quick Decision Making Reliability **Or** It helps in the visualization of the data our data. It also helps in checking for specific information. And it is, additionally, a great way to highlight top values or differences in our data as well. Besides all this, "Conditional Formatting" enables the different features to the users to make the data more informatic and readable as well. It also allows us to format the cells and their data effectively, which will meet the specified criteria respectively.	4
34.	Two basic methods of charging depreciation are: **Straight line method:** This method calculates fixed amount of depreciation every year which is calculated keeping in view the useful life of assets and its salvage value at the end of its useful life. **Written down value method:** This method uses current book value of the asset for computing the amount of depreciation for the next period. It is also known as declining balance method. **Differences:** 1. Equal amount of depreciation is charged in straight line method. Amount of depreciation 6 goes on decreasing every year in written down value method. 2. Depreciation is charged on original cost in straight line method. The amount is calculated on the book value every year. 3. In straight line method the value of asset can come to zero but in written down value method this can never be zero. 4. Generally rate of depreciation is low in case of straight line method but it is kept high in case of written down value method. 5. It is suitable for assets in which repair charges are less and the possibility of obsolescence is less. It is suitable for the assets which become obsolete due to changes in technology.	6

BUSINESS STUDIES (054)

CLASS XII (2024-25)

SAMPLE QUESTION PAPER

TIME: 3 HOURS   **M.M. – 80**

- This question paper contains 34 questions.
- Marks are indicated against each question.
- Answers should be brief and to the point.
- Answers to the questions carrying 3 marks may be from 50 to 75 words.
- Answers to the questions carrying 4 marks may be about 150 words.
- Answers to the questions carrying 6 marks may be about 200 words.

Q.NO.	QUESTION	MARKS
1.	The newly appointed Production Manager of Saheb Ltd., a firm manufacturing toys, Mr Ahrawat noticed that the workers in the factory were not giving their best as the physical conditions in the factory were not good. He conducted an experiment to see the effect of improvement in the physical conditions in the factory on the performance of the workers, by providing adequate ventilation and water facilities. He observed that the fatigue level of the workers reduced. The nature of management being highlighted in the above case is: A. Management as science B. Management as profession C. Management as art D. Both A. and C.	1
2.	Jasmine Ahluwalia is the manager of an artefacts museum's marketing team, responsible for promoting exhibitions and events. In the previous season, she defined the total work of managing the events into graphic designing, registration inquiries, bill payments, etc, in order to facilitate specialisation. However, instead of allocating work, she had assigned each team member the full responsibility of managing the promotion of an entire event. Inspite of holding regular team meetings to take feedback, Jasmine found problems throughout the events season in the quality of graphic design, registration inquiry, bill payments, etc,. For the upcoming events season, Jasmine has decided to divide these responsibilities on the basis of her observation of the areas in which the individual team members have excelled in the previous season and allocate the roles based on their skills and competencies. Identify the step in the organising process which was not properly performed in the previous season but has been duly performed for the upcoming season. A. Identification and division of work B. Establishing reporting relationships C. Departmentalisation D. Assignment of duties	1
3.	Read the following statements: Assertion (A) and Reason (R). Choose the correct alternative from those given below:	1

	Assertion(A): Financial Planning aims at enabling the company to tackle the uncertainty in respect of the availability and timing of the funds.
	Reason(R): Capital structure refers to the mix between owners' and borrowed funds
	Alternatives :
	   A. Both Assertion (A) is false and Reason (R) are true.
	   B. Both Assertion (A) and Reason (R) are false.
	   C. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion.
	   D. Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of the Assertion.	

4.	Read the following statements carefully:
	Statement I: Secondary Market directly promotes capital formation.
	Statement II: Capital market deals in medium and long term securities such as equity shares and debentures.
	In the light of given statements, choose the correct alternative from the following:
	   A. Both the statements are true.
	   B. Both the statements are false.
	   C. Statement I is true, Statement II is false.
	   D. Statement II is true, Statement I is false.
		1

5.	Choose the statement that correctly highlights the benefit of using external sources of recruitment.
	   A. Competitive spirit among the existing staff
	   B. Reduction in employees turnover
	   C. Helps in increasing employees satisfaction
	   D. Develops a sense of security amongst employees
		1

6.	Goodwill Enterprises is a large-scale automobile manufacturer, who fulfills the needs of both industrial users and consumers. The company is providing easy finance facilities at a low rate of interest, which has considerably increased the demand for the product. The company has installed a new branch management software to efficiently manage and coordinate activities across their multiple branches and locations.
	Identify the components of the business environment from the above case study.
	   A. Political and economic environment
	   B. Economic and social environment
	   C. Technological and legal environment
	   D. Economic and technological environment
		1

7.		1

	Identify the responsibility that a consumer fulfills when he looks for the quality marks given above:
	    A. Assert yourself to ensure that you get a fair deal
	    B. Getting a proper receipt
	    C. Buy only standardised products
	    D. Be honest in your dealings
	
	For Visually Impaired Candidates:
	When a consumer looks for FPO mark while purchasing a bottle of jam or hallmark when purchasing jewellery, which consumer responsibility has he kept in mind:
	    A. Assert yourself to ensure that you get a fair deal
	    B. Getting a proper receipt
	    C. Buy only standardised products
	    D. Be honest in your dealings
		1

8.	Read the following statements: Assertion (A) and Reason (R). Choose the correct alternative from those given below:
	ASSERTION (A): Controlling can prevent deviations.
	REASON (R): Controlling helps in minimising deviations by taking actions and decisions that reduce their recurrence.
	    A. Both Assertion (A) and Reason (R) are true and Reason is the correct explanation of Assertion.
	    B. Both Assertion(A) and Reason (R) are true and Reason is not the correct explanation of Assertion.
	    C. Assertion (A) is true, Reason (R) is false.
	    D. Assertion(A) is false, Reason(R) is true.
		1

9.	'Joining a job marks the beginning of socialisation of employees at the workplace. The employee should be given a post for which he has been selected.'
	Place the subsequent steps of staffing in a small organisation in the correct order:
	    A. Training and development, promotion and career planning, performance appraisal, compensation
	    B. Performance appraisal, training and development, promotion and career planning, compensation
	    C. Training and development, performance appraisal, promotion and career planning, compensation
	    D. Training and development, performance appraisal, compensation, promotion and career planning
		1

10.	Spiceworks, a company providing financial services to its clients is keeping a close check on the employee's activities by using biometric and retina scanning as modes of accessing the office premises, in order to ensure greater security of information in the organisation.
	Choose the correct point of significance of controlling highlighted above:
	    A. controlling helps in achievement of organisational goals
	    B. controlling helps in ensuring order and discipline
	    C. controlling helps in improving employees motivation
	    D. controlling enables optimum utilisation of resources
		1

11.	Identify the incorrect statement with respect to 'Investment decision': A. Net working capital refers to excess of current assets over current liabilities B. Current assets are those assets which get converted into cash within one year C. Capital budgeting decisions are irreversible. D. Size of the assets, Profitability and competitiveness are not affected by capital budgeting decisions.	1
12.	State Commission has the jurisdiction to entertain complaints where value of goods and services paid as consideration is _____ A. More than ₹1 crore and not more than ₹ 5 crore B. More than ₹10 crore C. Less than ₹1 crore D. More than ₹1 crore and not more than ₹10 crore	1
13.	Match the statements given in column I with the characteristic of business environment given in column II	1

		COLUMN I		COLUMN II
(a)		Increased demand of Khakhra and Thepla in the region of Gujarat as compared to Delhi region	i.	Uncertainty
(b)		Digital academic certificates are issued to students accessible in a secured manner to eliminate undesirable practices like corruption and manipulation of records under Digital India Initiative. Such technological improvements are happening at a very fast pace.	ii.	Dynamic
(c)		Fashion market is facing both opportunities and challenges. Therefore it is difficult to predict the future of the fashion market.	Iii.	Relativity
(d)		A new government will result in changing government rules, fiscal policies, market conditions etc	Iv.	Interrelatedness

Choose the correct option from the following:
A. (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
B. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)
C. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
D. (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

14.	The process of classification of products into different groups, on the basis of some of the important characteristics such as quality, size, etc. is known as: A. Branding B. Standardisation C. Grading D. Marketing planning	1

15.	Shiwakumar runs a legal consultancy firm in Chhattisgarh. Whenever the firm hires new employees, on the first day of joining, they are welcomed to the organisation and are given details about the dress code, lunch timings, introduction to daily operations and fellow colleagues. They are also familiarised with the organisational policies and procedures, emergency exits, evacuation procedure, etc.
	Name the type of training which is provided by Shiwakumar in his firm.
	    A. Apprenticeship training
	    B. Vestibule training
	    C. Induction training
	    D. Internship training
		1

16.	Identify the incorrect statement with respect to Consumer Protection in India.
	    A. It not only includes educating consumers about their rights and responsibilities but also helps in getting their grievances redressed
	    B. It not only requires a judicial machinery for protecting the interest of consumers but also requires the consumers to get together and form themselves into Consumer associations for protection and promotion of their interests.
	    C. It is the moral duty of any business to take care of consumers' interest and avoid any form of exploitation.
	    D. The provisions of Consumer Protection Act came into force from 1981.
		1

17.	Identify the decision which is not taken under financial management.
	    A. Dividend Decision
	    B. Capital Budgeting Decision
	    C. Pricing Decision
	    D. Both B. and C.
		1

18.	What are the factors that affect financing decisions?
	(a) Cash flow position of the company
	(b) Stability of earnings
	(c) Degree of financial risk
	(d) Contractual constraints
	(e) State of capital market
	(f) Level of competition
	Choose the correct alternative from the following:
	    A. (b), (c) and (f)
	    B. (d), (e) and (f)
	    C. (a), (c) and (d)
	    D. (a), (c) and (e)
		1

19.	Consumers can ask anything regarding the date of manufacturing, MRP, etc, about the product that he intend to buy.
	Identify the consumer right highlighted in the above lines.
	    A. Right to be informed
	    B. Right to be assured
	    C. Right to be heard
	    D. Right to safety
		1

20.	Read the following statements carefully: **Statement I:** Cost of debt is lower than cost of equity for a company.	1

	Statement II: The objective of financial management is to increase shareholder's wealth.
	In the light of given statements, choose the correct alternative from the following:
	    A. Both the statements are true.
	    B. Both the statements are false.
	    C. Statement I is true, Statement II is false.
	    D. Statement II is true, Statement I is false.	

21.(A)	State the meaning of single use plans and standing plans	3
	OR	
21.(B)	State how planning (I) reduces creativity (II) leads to rigidity.	1 ½ 1 ½
22. (A)	Explain the concept of leadership. Give two situations in which autocratic leadership style is most effective.	3
	OR	
22. (B)	Explain the concept of communication. Give the meaning of formal and informal communication.	3
23.	From the following information regarding Aditya Ltd. which is in the business of manufacturing green tea, calculate the Return on Investment and Interest Coverage Ratio of the company: (Show working) Earning before interest and tax ₹ 15,00,000 10% debentures ₹ 12,00,000 Equity Share Capital (₹10 each) ₹ 18,00,000 Tax Rate 40%	3
24.	Mr Vivek Vaswani, a foodpreneur combined his passion for food with his entrepreneurial skills and started his innovative fast food outlet OH CHILLI! in 2021. He had started his career as a food blogger and had noticed that numerous Indian consumers were looking for reasonable and pure vegetarian fast food options for dining out. The high end restaurants were not opted by many as they were exorbitantly priced. Though many global fast food chains were running across the country, yet not many outlets offered reasonable and healthy pure vegetarian fast food options to consumers. OH CHILLI! became a pioneer in offering a healthy and delicious variety of food. What came as a surprise for consumers was that even without using onion or garlic in the pasta sauce, marinade and ketchup ,the food could actually taste great. The company witnessed an increase in net profit of 26% in its second financial year and became a market leader.	
	(I) State the concept of business environment.	1
	(II) Identify and explain in what way, a good understanding of business environment enabled Mr. Vivek Vaswani to improve the performance of the enterprise.	2
25.	The General manager of a reputed organisation, Mr. Agastaya Lokhande, made the following announcement at the Annual General Meeting of the company- "When we think of a brand, we think of reputation, but the reputation is made or broken by the quality of products and customer representation. If people are miserable, they can't give their best work and the brand suffers. On	

	the contrary, positive results can be observed if there is job satisfaction, effective and efficient functioning."	
	(I) Identify and explain the feature of management discussed by Mr Agastaya in his announcement.	1
	(II) Explain any three reasons that make management important to any organisation.	3
26. (A)	In order to streamline the selection procedure, so as to minimise the margin of errors, certain tests are carried out that attempt to measure the characteristics of individuals. Explain any four such tests.	4
	OR	
26. (B)	Since jobs have become more complex, the importance of employee training has increased. Training programmes provide numerous benefits to workers. Explain any four points that support this statement.	4
27.	When Bhaanupriya joined as technical head of Logic Lotus Innovators, she was keen on increasing the productivity and profitability of the company. However, she observed that the employees were demotivated as no attention was given to their work. Also, the workers were given little freedom to make decisions. Bhaanupriya decided to stimulate the employees by giving each worker T-shirts with their name on it. She also decided to include workers in work committees. This helped in improving the performance of the workers.	
	(I) On the basis of the understanding of Maslow's Need Hierarchy Theory of motivation, identify the human need that Bhaanupriya has recognised in order to make the subordinates act towards achievement of organisational goals.	1
	(II) Identify and explain two incentives that have been provided by Bhanupriya to improve the performance of the employees.	3
28. (A)	Explain how Planning and controlling are both backward looking, as well as forward looking functions.	4
	OR	
28. (B)	The first step in the controlling process is setting up performance standards. Explain the subsequent two steps in the process of controlling.	4
29.	When Chandrashekhar Shukla returned to India after completing a Certificate course in Food Quality Assurance and Quality Control from the Netherlands, he was convinced that he would fulfil his grandfather's dream of converting their 58 acre land into a fertile farm. He started by setting out specific goals and laid down related activities to be performed to achieve the goals. Soon he launched his own company 'Food and Agribusiness Solutions Private Limited'. He sought to ensure that the future events effectively meet the best interest of the company. He prepared an annual statement for production and sales, based on sales forecasting. He noticed that the farmers grew only paddy due to which land remained idle for the subsequent 8 to 9 months of the year. He identified and assessed various alternatives through which farms could be utilised for the remaining months of the year. Through his accurate vision, judgement and systematic thinking based on analysis of the facts, he presented a scheme to the farmers where both paddy and vegetables could be grown.	4

	Identify and explain the features of one of the functions of Management highlighted above.	
30.	Give any four points of difference between advertising and personal selling.	4
31.	It was established by the Government of India on 12 April 1988 as an interim administrative body to promote orderly and healthy growth of the securities market and for investor protection. It was given statutory status in 1992 through an Act of Parliament. (I) Identify the regulatory body which has been highlighted above. (II) State the three objectives of the regulatory body identified in part (I). (III) State any two functions that are performed for the development of the securities market by the regulatory body identified in part (I).	 1 3 2
32. (A)	Differentiate between functional structure and divisional structure on the basis of: (I) Formation (II) Specialisation (III) Responsibility (IV) Managerial development (V) Cost (VI) Coordination	6
	OR	
32. (B)	'Delegation helps a manager to extend his area of operations as without it, his activities would be restricted to only what he himself can do.' In light of the above statement, explain how effective delegation helps the organisation in achieving objectives.	6
33.	Leena has been appointed as the Operations Manager in a small trading company dealing in garments, with growing online sales. The company has recently rented space in a warehouse to store garments and mail out orders. In order to take over the responsibilities of order fulfilment, Leena promotes an associate, Kushagra to the post of Inventory and Order fulfilment Supervisor. Kushagra has been given the task to assess whether it is best to process orders as they come in or let them accumulate and then to process them in batches. He concludes that accumulating and then processing them in batches is the best way of fulfilling orders, in order to minimise cost and maximise customer satisfaction. Through several readings Leena finds that the standard time taken from the placement of order to the delivery of garments for a batch of 100 pieces is 72 hours. This helped her to determine the labour cost. On the basis of the understanding of concepts of scientific management, identify and explain the techniques used by Leena and Kushagra to improve the performance of the employees.	6
34. (A)	Explain the four elements of marketing mix.	6
	OR	
34. (B)	Explain any four factors affecting determination of the price of a product or service.	6

BUSINESS STUDIES (054)

Class XII (2024-25)

MARKING SCHEME

Q.NO.	ANSWER	MARKS
1.	A. Management as science	1
2.	D. Assignment of duties	1
3.	C. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion.	1
4.	D. Statement II is true, Statement I is false	1
5.	A. Competitive spirit among the existing staff	1
6.	D. Economic and technological environment	1
7.	C. Buy only standardised products **For Visually Impaired Candidates:** C. Buy only standardised products	1 1
8.	D. Assertion (A) is false, Reason (R) is true	1
9.	C. Training and development, performance appraisal, promotion and career planning, compensation	1
10.	B. controlling helps in ensuring order and discipline	1
11.	D. Size of the assets, Profitability and competitiveness are not affected by capital budgeting decisions.	1
12.	D. More than ₹1 crore and not more than ₹10 crore	1
13.	A. (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)	1
14.	C. Grading	1
15.	C. Induction training	1
16.	D. The provisions of the Consumer Protection Act came into force from 1981.	1
17.	C. Pricing decision	1
18.	D. (a), (c) and (e)	1
19.	A. Right to be informed	1
20.	A. Both the statements are true.	1
21. (A)	**Single Use plans**- A single-use plan is developed for a one-time event or project. Such a course of action is not likely to be repeated in future, i.e., they are for non-recurring situations.The duration of this plan may depend upon the type of the project. It may span a week or a month or a day. **Standing plans**-A standing plan is used for activities that occur regularly over a period of time. It is designed to ensure that internal operations of an organisation run smoothly. Such a plan greatly enhances efficiency in routine decision-making. It is usually developed once but is modified from time to time to meet business needs as required. **OR**	1 ½ 1 ½
21. (B)	**Planning reduces creativity-** Planning is an activity which is done by the top management. Usually the rest of the members just implement these	1 ½

	plans. As a consequence, middle management and other decision makers are neither allowed to deviate from plans nor are they permitted to act on their own.Thus, planning in a way reduces creativity since people tend to think along the same lines as others. **Planning leads to rigidity**-In an organisation, a well-defined plan is drawn up with specific goals to be achieved within a specific time frame. These plans then decide the future course of action and managers may not be in a position to change it. Following a pre-decided plan, when circumstances have changed, may not turn out to be in the organisation's interest.	1 ½
22. (A)	**Leadership** is the process of influencing the behaviour of people by making them strive voluntarily towards achievement of organisational goals. **Two situations in which Autocratic leadership is most effective:** • This leadership style is effective in getting productivity in many situations like in a factory where the supervisor is responsible for production on time and the supervisor has to ensure labour productivity. • Quick decision-making is facilitated.	1 1 1
	OR	
22. (B)	**Communication** is the process of exchange of information between two or more persons to reach common understanding. **Meaning of formal communication:** Formal communication flows through official channels designed in the organisation chart. **Meaning of Informal communication:** Communication that takes place without following the formal lines of communication is said to be informal communication.	1 1 1
23.	**Calculation of Return on Investment (ROI)** 　　ROI= Earnings before interest and tax x100 　　　　　　　Total investment 　ROI = 1500000 x100 　　　　　3000000 　　　=50% **Calculation of Interest Coverage Ratio (ICR)** 　　Interest coverage ratio = Earnings before interest and tax 　　　　　　　　　　　　　　　Interest 　　ICR = 1500000 　　　　　 120000 　　=12.5 times	½ ½ ½ ½ ½ ½
24.	(I) **Business Environment** means the sum total of all individuals, institutions and other forces that are outside the control of a business enterprise but that may affect its performance. (II) **It enables the firm to identify opportunities and getting the firs**t **mover advantage:** Opportunities refer to the positive external trends or changes that will help a firm to improve its performance. Environment provides numerous opportunities for business success. Early identification of opportunities helps an enterprise to be the first to exploit them instead of losing them to competitors	1 ½ + 1 ½

25.	(I) **Management is an intangible force:** Management is an intangible force that cannot be seen but its presence can be felt in the way the organisation functions. The effect of management is noticeable in an organisation where targets are met according to plans, employees are happy and satisfied, and there is orderliness instead of chaos.	½ + ½
	(II) Importance of management: (Any three) • **Management helps in achieving group goals:** Management is required not for itself but for achieving the goals of the organisation. The task of a manager is to give a common direction to the individual effort in achieving the overall goal of the organisation. • **Management increases efficiency:** The aim of a manager is to reduce costs and increase productivity through better planning, organising, directing, staffing and controlling the activities of the organisation. • **Management creates a dynamic organisation:** All organisations have to function in an environment which is constantly changing. It is generally seen that individuals in an organisation resist change as it often means moving from a familiar, secure environment into a newer and more challenging one. Management helps people adapt to these changes so that the organisation is able to maintain its competitive edge. • **Management helps in achieving personal objectives**: A manager motivates and leads his team in such a manner that individual members are able to achieve personal goals while contributing to the overall organisational objective. • **Management helps in the development of society**: An organisation has multiple objectives to serve the purpose of the different groups that constitute it. In the process of fulfilling all these, management helps in the development of the organisation and through that it helps in the development of society.	1 x 3
26. (A)	Selection tests (Any four): • **Intelligence Tests:** This is one of the important psychological tests used to measure the level of intelligence quotient of an individual. It is an indicator of a person's learning ability or the ability to make decisions and judgments. • **Aptitude Test:** It is a measure of an individual's potential for learning new skills. It indicates the person's capacity to develop. • **Personality Tests**: Personality tests provide clues to a person's emotions, her reactions, maturity and value system etc. These tests probe the overall personality. Hence, these are difficult to design and implement. • **Trade Test:** These tests measure the existing skills of the individual. They measure the level of knowledge and proficiency in the area of professions or technical training. The difference between aptitude test and trade test is that the former measures the potential to acquire skills and the later the actual skills possessed.	1X4=4

26. (B)	• **Interest Tests:** Every individual has a fascination for some job more than the other. Interest tests are used to know the pattern of interests or involvement of a person. **OR** **Benefit of training to workers:** • Improved skills and knowledge due to training lead to better careers for the individual. • Increased performance by the individual helps him to earn more. • Training makes the employee more efficient to handle machines. Thus, less prone to accidents. • Training increases the satisfaction and morale of employees.	 1 1 1 1
27.	(I) **Esteem Needs** (II) • **Employee Recognition programmes:** Recognition means acknowledgment with a show of appreciation. When such appreciation is given to the work performed by employees, they feel motivated to perform/work at a higher level. • **Employee Participoee**:It means involving employees in decision making of the issues related to them. In many companies, these programmes are in practice in the form of joint management committees, work committees, canteen committees etc.	1 ½ + 1 ½ + 1
28.(A)	Plans are prepared for the future and are based on forecasts about future conditions. Therefore, **planning** involves looking ahead and is called a **forward-looking function.** On the contrary, controlling is like a postmortem of past activities to find out deviations from the standards. In that sense, **controlling is a backward looking function.** However, planning is guided by past experiences and the corrective action initiated by the control function aims to improve future performance. Thus, **planning and controlling are both backward-looking as well as a forward-looking function.** **OR**	4
28.(B)	• **Measurement of Actual Performance**: Once performance standards are set, the next step is measurement of actual performance. Performance should be measured in an objective and reliable manner. There are several techniques for measurement of performance. These include personal observation, sample checking, performance reports. • **Comparing Actual Performance with Standards**: This step involves comparison of actual performance with the standard. Such comparison will reveal the deviation between actual and desired results. Comparison becomes easier when standards are set in quantitative terms.	½ + 1½ ½ + 1½
29.	**Features of Planning** (1) **Planning focuses on achieving objectives:** Organisations are set up with a general purpose in view. Specific goals are set out in the plans along with the activities to be undertaken to achieve the goals. Thus, planning is purposeful. Planning has no meaning unless it contributes to the achievement of predetermined organisational goals.	1

		(2) **Planning is futuristic:** Planning essentially involves looking ahead and preparing for the future. The purpose of planning is to meet future events effectively to the best advantage of an organisation. It implies peeping into the future, analysing it and predicting it. Planning is, therefore, regarded as a forward looking function based on forecasting.	1
		(3) **Planning involves decision making:** Planning essentially involves choice from among various alternatives and activities. The need for planning arises only when alternatives are available. In actual practice, planning presupposes the existence of alternatives. Planning, thus, involves thorough examination and evaluation of each alternative and choosing the most appropriate one.	1
		(4) **Planning is a mental exercise:**Planning requires application of the mind involving foresight, intelligent imagination and sound judgement. It is basically an intellectual activity of thinking rather than doing, because planning determines the action to be taken. However, planning requires logical and systematic thinking rather than guesswork or wishful thinking.	1
30.		Following are the differences between advertising and personal selling (any four):	1X4=4

S.No.	Advertising	Personal Selling
1.	Advertising is an impersonal form of communication	Personal selling is a personal form of communication.
2.	Advertising involves transmission of standardised messages, i.e., the same message is sent.	In personal selling, the sales talk is adjusted keeping view of the customer's background and needs.
3.	Advertising is inflexible as the message can' t be adjusted to the needs of the buyer.	Personal selling is highly flexible. as the message can be adjusted.
4.	It reaches masses, i.e., a large number of people can be approached.	Only a limited number of people can be contacted because of time and cost considerations.
5.	In advertising the cost per person reached is very low.	The cost per person is quite high in the case of personal selling.
6.	Advertising can cover the market in a short time.	Personal selling efforts take a lot of time to cover the entire market.
7.	Advertising makes use of mass media such television, radio, newspaper, and magazines.	Personal selling makes use of sales staff, which has limited reach.

	8.	Advertising lacks direct feedback. Marketing research efforts are needed to judge customers' reactions to advertising	Personal selling provides direct and immediate feedback. Sales persons come to know about the customers' reactions immediately	
	9.	Advertising is more useful in creating and building interest of the consumers in the firm's products.	Personal selling plays an important role at the awareness stage of decision making.	
	10.	Advertising is more useful in marketing to the ultimate consumers who are large in numbers.	Personal selling is more useful in selling products to the industrial buyers or to intermediaries such as dealers and retailers who are relatively few in number.	

31.	(I) Securities Exchange Board of India(SEBI) (II) **Objectives of SEBI are (Any three)** • to regulate the stock exchanges and the security industry to promote their orderly functioning. • to protect the rights and interest of the investors, particularly individual investors to guide and educate them. • to prevent trading Malpractices and achieve a balance between self regulation by the security industries and its statutory regulation. • to regulate and develop a code of conduct and fair practices, by intermediaries like brokers, merchant brokers etc. with a view of making them competitive and professional. (III) **Developmental functions: (Any two)** • Training of intermediaries of the securities market. • Conducting research and publishing information useful to all market participants. • Undertaking measures to develop the capital markets by adapting a flexible approach.	1 1×3=3 1x2=2

32. (A)	**Difference between Functional and Divisional structure**	1X6=6

Basis	Functional Structure	Divisional Structure
(I) Formation	Formation is based on functions	Formation is based on product lines and is supported by functions. Specialisation
(II) Specialisation	Functional specialisation.	Product specialisation.

	(III) Responsibility	Difficult to fix on a department.	Easy to fix responsibility for performance	
	(IV)Managerial Development	Difficult, as each functional manager has to report to the top management.	Easier, autonomy as well as the chance to perform multiple functions helps in managerial development	
	(V) Cost	Functions are not duplicated hence economical.	Duplication of resources in various departments, hence costly.	
	(VI) Coordination	Difficult for a multiproduct company	Easy, because all functions related to a particular product are integrated in one department.	

OR

32. (B)	SIGNIFICANCE OF DELEGATION: (i) Effective management: By empowering the employees, the managers are able to function more efficiently as they get more time to concentrate on important matters. (ii) Employee development: As a result of delegation, employees get more opportunities to utilise their talent and this may give rise to latent abilities in them. It makes them better leaders and decision makers. (iii) Motivation of employees: Delegation helps in developing the talents of the employees. It also has psychological benefits. Responsibility for work build the self-esteem of an employee and improves his confidence. (iv) Facilitation of growth: Delegation helps in the expansion of an organisation by providing a ready workforce to take up leading positions in new ventures. (v) Basis of management hierarchy: Delegation of authority establishes superior-subordinate relationships, which are the basis of hierarchy of management. (vi) Better coordination: The elements of delegation help to define the powers, duties and answerability related to the various positions in an organisation. This helps to avoid overlapping of duties and duplication of work.	1X6=6
33.	**Various techniques used by Leena to improve the performance of her employees:** **Method Study**-The objective of method study is to find out one best way of doing the job. To determine the best way there are several parameters. Right from procurement of raw materials till the final product is delivered to the customer every activity is part of method study. Taylor devised the concept of assembly line by using method study. The objective is to minimise the cost of production and maximise the quality and satisfaction of the customer. **Time Study-**It determines the standard time taken to perform a well-defined job. The standard time is fixed for the whole of the task by taking several	½ + 2 ½ ½ + 2 ½

		readings. The method of time study will depend upon volume and frequency of the task, the cycle time of the operation and time measurement costs. The objective of time study is to determine the number of workers to be employed; frame suitable incentive schemes and determine labour costs.	
34. (A)		**Following are the four elements of marketing mix:** 1. **PRODUCT:** Product means goods or services or 'anything of value', which is offered to the market for sale. The concept of product relates to not only the physical product but also the benefits offered by it from customer's view point. It also includes the extended product or what is offered to the customers by way of after sales services, handling complaints, availability of spare parts etc.The important product decisions include deciding about the features, quality, packaging, labelling and branding of the products.	½ + 1
		2. **PRICE**: Price is the amount of money customers have to pay to obtain the product. In the case of most of the products, the level of price affects the level of their demand. The marketers have not only to decide about the objectives of price setting but to analyse the factors determining the price and fix a price for the firm's products. Decisions have also to be taken in respect of discounts to customers, traders and credit terms, etc., so that customers perceive the price to be in line with the value of the product.	½ + 1
		3. **PLACE:** Place or Physical Distribution include activities that make a firm's products available to the target customers. Important decision areas in this respect include selection of dealers or intermediaries to reach the customers, providing support to the intermediaries (by way of discounts, promotional campaigns, etc.). The other decision areas relate to managing inventory, storage and warehousing and transportation of the goods from the place it is produced to the place it is required by the buyers.	½ + 1
		4. **PROMOTION:** Promotion of products and services include activities that communicate availability, features, merits, etc., of the products to the target customers and persuade them to buy it. Most marketing organisations use a number of tools such as advertising, personal selling and sales promotion techniques like price discounts, free coupons etc.	½ + 1
		OR	
34. (B)		Factors affecting price of a product: (any four)	
		1. **Product Cost:** One of the most important factors affecting the price of a product or service is its cost. This includes the cost of producing, distributing and selling the product. The cost sets the minimum level or the floor price at which the product may be sold.In the long run, a firm cannot survive unless at least all its costs are covered. There are broadly three types of costs: viz Fixed Costs, Variable Costs and Semi Variable Costs. 2. **The utility and demand**: While the product costs set the lower limits of the price, the utility provided by the product and the intensity of demand of the buyer sets the upper limit of price, which a buyer would be prepared to pay. The buyer may be ready to pay up to the point where the utility from the product is at least equal to the sacrifice made in terms of the price paid.	(½ + 1) x 4

3. **Extent of competition in the market:** The price will tend to reach the upper limit in case there is lesser degree of competition while under conditions of free competition, the price will tend to be set at the lowest level.

4. **Government and legal regulations:** In order to protect the interest of public against unfair practices in the field of price fixing, Government can intervene and declare a product as essential product and regulate it's price. In such a case, the Government does not allow the firms to charge such a high price and intervene to regulate the price of the product.

5. **Pricing objectives**: Apart from profit maximisation, the pricing objectives of a firm may include: (a) Obtaining Market Share Leadership: If a firm's objective is to obtain larger share of the market; it will keep the price of its products at lower levels so that greater number of people are attracted to purchase the products; (b) Surviving in a Competitive Market: If a firm is facing difficulties in surviving in the market because of intense competition or introduction of a more efficient substitute by a competitor, it may resort to discounting its products or running a promotion campaign to liquidate its stock; and (c) Attaining Product Quality Leadership: In this case, normally higher prices are charged to cover high quality and high cost of research and Development.

6. **Marketing Methods Used:** Price fixation process is also affected by other elements of marketing such as distribution system, quality of salesmen employed, quality and amount of advertising, sales promotion efforts, the type of packaging, product differentiation, credit facility and customer services provided.

ECONOMICS (030)
CLASS XII (2024-25)
SAMPLE QUESTION PAPER
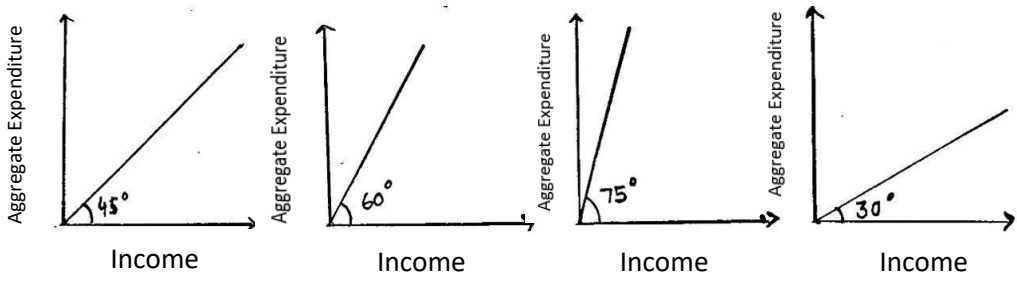
TIME: 3 HOURS   **M.M. – 80**

GENERAL INSTRUCTIONS:

I. This question paper contains two sections:
    Section A – Macro Economics
    Section B – Indian Economic Development

II. This paper contains 20 Multiple Choice Type Questions of 1 mark each.

III. This paper contains 4 Short Answer Type Questions of 3 marks each to be answered in 60 to 80 words.

IV. This paper contains 6 Short Answer Type Questions of 4 marks each to be answered in 80 to 100 words.

V. This paper contains 4 Long Answer Type Questions of 6 marks each to be answered in 100 to 150 words.

Q.NO.	SECTION A – MACRO ECONOMICS	MARKS
1.	Read the following statements: Assertion (A) and Reason (R). Choose the correct option from those given below: **Assertion (A)**: The government can reduce the deflationary gap by purchasing government securities in the open market. **Reason (R):** The Central Bank purchases government securities in the open market to increase the lending capacity of commercial banks. Options: A. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A). C. Assertion (A) is true, but Reason (R) is false. D. Assertion (A) is false, but Reason (R) is true.	1
2.	"The Cabinet led by Prime Minister has decided that the Central Government will provide free food grains to 81.35 crore (approx.) beneficiaries under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) for a period of five years with effect from 1st January, 2024." Source: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1980689 Based on the aforesaid statement, identify the budgetary objective the government is trying to achieve and choose the correct option: A. Reallocation of resources B. Economic stability C. Redistribution of income D. Economic instability	1
3.	To arrive at the value of Gross Value Added at Market Price (GVA_{MP}) _____ must be added to Gross Value Added (GVA) at Basic Prices. (Choose the correct option to fill up the blank) A. Product Taxes B. Net Product Taxes C. Production Taxes D. Net Production Taxes	1
4,	Under the _____ exchange rate system, market forces automatically adjust the surplus and deficit in the Balance of Payments account. (Choose the correct option to fill up the blank)	1

	A. fixed B. flexible C. managed floating D. dirty floating	
5.	From the given diagrams, identify the correct option that indicates the 'Reference Line' passing through the origin drawn at a particular angle. (i) (ii) (iii) (iv) A. (i) B. (ii) C. (iii) D. (iv) **For Visually Impaired Candidates:** Under the Keynesian theory, 'Reference Line' is a straight line passing through the origin drawn at an angle of _____. (Choose the correct option to fill up the blank) A. 25^0 B. 45^0 C. 55^0 D. 75^0	1 1

6.	As per the data presented in the Union Budget 2023-24, the total receipts of the government other than borrowings and the total expenditure are estimated at ₹ 27.2 lakh crore and ₹ 45 lakh crore respectively.
	 The value of the _____ deficit would be ₹ 17.8 lakh crore.
	                       (Choose the correct option to fill up the blank)
	      A. revenue B. fiscal
	      C. budgetary D. primary
		1

7.	Read the following statements carefully: **Statement 1:** The maximum value of Marginal Propensity to Consume (MPC) can be unity. **Statement 2:** As the income of an economy increases, the proportionate increase in the level of consumption is always more than the increase in the level of income. In light of the given statements, choose the correct option from the following: A. Statement 1 is true and Statement 2 is false. B. Statement 1 is false and Statement 2 is true. C. Both Statements 1 and 2 are true. D. Both Statements 1 and 2 are false.	1
8.	In a two-sector economy, Aggregate Demand can be determined by adding _____. (Choose the correct option to fill up the blank) A. Autonomous Consumption, Induced Consumption and Induced Investment B. Autonomous Consumption, Autonomous Investment and Induced Investment C. Autonomous Consumption and Autonomous Investment D. Autonomous Consumption, Induced Consumption and Autonomous Investment	1
9.	Read the following statements carefully: **Statement 1:** Foreign grants-in-aid receipts do not lead to any claim on the government.	1

	Statement 2: Disposal of equity by the Public Sector Undertakings in the market may lead to a decrease in the assets of the government.
	In light of the given statements, choose the correct option from the following:
	    A. Statement 1 is true and Statement 2 is false.
	    B. Statement 1 is false and Statement 2 is true.
	    C. Both Statements 1 and 2 are true.
	    D. Both Statements 1 and 2 are false.
		3

10.	Based on the given diagram:
	The trade under current account during January 2024 reflects a _____ of USD _____ billion. (Choose the correct option to fill up the blank)
	    A. surplus, 0.74 B. surplus, 3.85
	    C. deficit, 0.74 D. deficit, 3.85
	
	Overall Trade (Merchandise + Services)
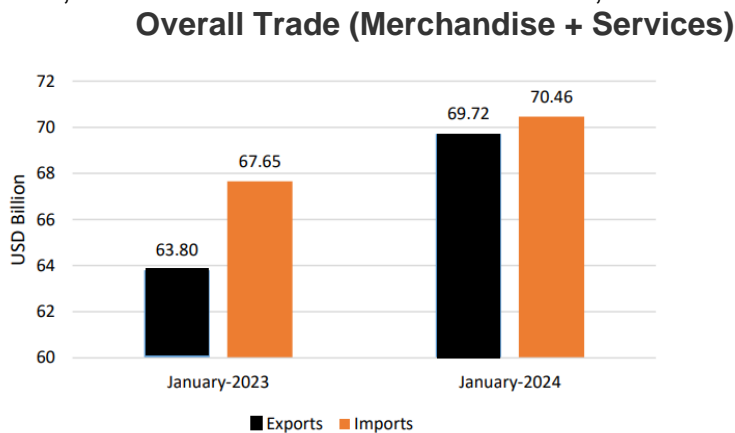	
	Source: https://commerce.gov.in/wp-content/uploads/2024/02/PIB-Press-Release-January-2024-1.pdf
	For Visually Impaired Candidates:
	_____ indicates the situation of Current Account Deficit in the Balance of Payments Account.
	    A. Receipts > Payments on current account
	    B. Receipts = Payments on current account
	    C. Receipts < Payments on current account
	    D. Receipts < Payments on capital account
		1
		
		1

11. (A)	On the basis of the given data, estimate the value of Domestic Income (NDP$_{FC}$):	3

S. No.	Items	Amount (₹ in crore)
i.	Household Consumption Expenditure	800
ii.	Gross Business Fixed Capital Formation	150
iii.	Gross Residential Construction Investment	120
iv.	Government Final Consumption Expenditure	170
v.	Excess of Imports over Exports	20
vi.	Inventory Investment	140
vii.	Gross Public Investment	500
viii.	Net Indirect Taxes	70
ix.	Net Factor Income From Abroad	(-) 50
x.	Consumption of Fixed Capital	40
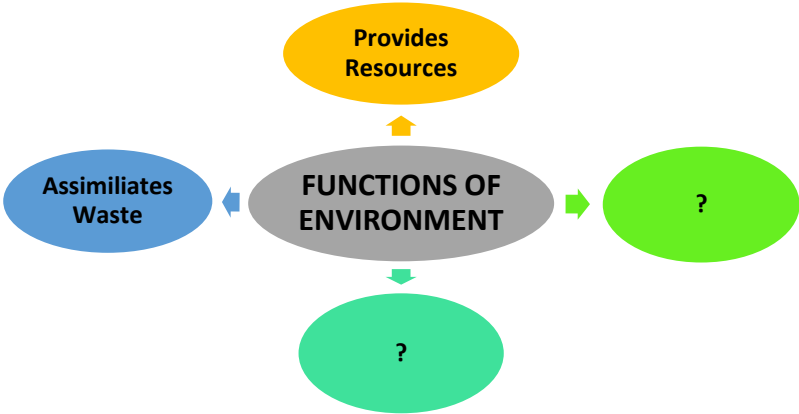
	OR	
11. (B)	State the steps pertaining to the estimation of National Income under the income method.	3

12.	"Tax revenue collection of the government may be categorized under two heads." State and explain the two heads of tax revenue.	3
13.	(I) 'Foreign Portfolio Investment (FPI) witnessed a sharp turnaround during 2023-24 with net FPI inflows of US$ 32.4 billion.' In which sub-account and on which side of the Balance of Payments account the above transaction will be recorded? Give reasons in support of your answer.	3
	(II) State the meaning of 'Balance of Payments Deficit'.	1
14. (A)	"Saving curve can be derived from the consumption curve" Justify the statement, citing valid steps with the help of a well-labelled diagram. **For Visually Impaired Candidates:** "Saving curve can be derived from the consumption curve" Justify the statement, citing valid steps. **OR**	4
14. (B)	For two hypothetical economies A and B, the value of Marginal Propensity to Consume (MPC) stands at 0.6 and 0.8 respectively. Assuming for both the economies, Autonomous Consumption ($\bar{c}$) to be ₹ 40 crore and Investment Expenditure (I) to be ₹ 100 crore. Calculate:	
	(I) Break-even level of income for Economy A	2
	(II) Equilibrium level of income for Economy B	2
15.	Read the following text carefully: "Union Finance Minister stated, that investments in infrastructure and productive capacity have a large multiplier impact on growth and employment and in view of this, capital investment outlay is being proposed to increase steeply in the Budget 2023-24 by 1,000 crore." Based on the given text and common understanding, explain the working process of the increase in investment on the National Income, assuming the Marginal Propensity to Save (MPS) as 20%.	4
16.	Read the following text carefully: As societies developed from hunters and gatherers, the material needs of human beings increased – to build a house, wear clothes, make weapons and implements etc. Since these needs could not be produced individually, people had to purchase them from others. These purchases, for example, were paid initially by barter – a leather skin cloak for a spear. As barter had its limits – how many cloaks for a spear – barter got standardized in terms of metals or cowrie shells. Now people knew the value of both the cloak and the spear in terms of bronze or cowrie shells. This was still barter, as both bronze and shells had intrinsic value (shells were desired for their beauty). This system evolved over time into metal currencies. Gold and silver coinage were the offshoot of this system where they had features of barter (both gold and silver had intrinsic value) as well as money (they were standardized representation of value). In respect of money two facts emerge historically: • Money has taken the form of either commodities (which have intrinsic value) or in terms of debt instruments.	

	• Money is usually issued by a sovereign (or a Central Bank as its representative). In modern economies, currency is a form of money that is issued exclusively by some competent authority (Central Bank). It is a liability of the issuing Central Bank and an asset of the holding public. Currency is usually issued in paper (or polymer) form, but the form of currency is not its defining characteristic. In the recent past, the Reserve Bank of India, issued Central Bank Digital Currency (CBDC). A CBDC is the currency issued by a central bank in a digital form. It serves all the purposes of a paper currency in a different form. The introduction of CBDC has the potential to provide significant benefits, such as reduced dependency on cash, lower transaction costs, reduced settlement risk. Introduction of CBDC would possibly lead to a more robust, efficient, trusted, regulated payments option. There are associated risks such as cyber-attacks and technology preparedness, but they need to be carefully evaluated against the potential benefits. Source: https://website.rbi.org.in/web/rbi/-/speeches-interview/central-bank-digital-currency-is-this-the-future-of-money-1111 (adapted and modified) On the basis of the given text and common understanding, answer the following questions: (I) "Over the centuries, money has evolved in various forms." In the light of the given statement, state and discuss briefly any two forms of money.	3
	(II) "Various economists have formed a strong opinion that, in the modern times digital currency (like CBDC) is quite essential. However, it comes with its own benefits and potential risks." Do you agree with the given statement, giving valid arguments in support of your answer.	3
17. (A)	(I) On the basis of the following hypothetical data: (all figures in ₹ crore) | Year	Nominal GDP	Nominal GDP adjusted to base year prices
2020	3,000	4,000
2023	4,000	4,500 | Calculate the percentage change in Real Gross Domestic Product in the year 2023 using 2020 as the base year.	3
	(II) "The public investment on the construction of a multi-lane flyover may reduce traffic congestion." On the basis of the above statement, discuss its likely impact on Gross Domestic Product (GDP) and welfare in an economy. <center>**OR**</center>	3
17. (B)	(I) "Basis of classification of final goods into consumption and capital goods depend on the economic nature of its use." Defend or refute the statement, with the help of a suitable example.	4
	(II) 'Natural calamities in the hill states of India have led to massive destruction of capital assets.' Identify the type of loss (depreciation or capital loss) indicated in the aforesaid statement. Give valid reasons in support of your answer.	2

	SECTION B - INDIAN ECONOMIC DEVELOPMENT	

18.	Read the given image carefully: Choose the correct option which indicates the combination of vital functions performed by the environment.
	 i. Sustains life
	 ii. Provides aesthetic services
	 iii. Generates waste
	 iv. Provides only renewable resources
	Options:
	  A. (i) and (ii) B. (ii) and (iii)
	  C. (i) and (iv) D. (i) and (iii)
	For Visually Impaired Candidates:
	Identify, which of the following is not a correct function of environment?
	(i) Elimination of waste
	(ii) Sustainance of life
	(iii) Provide aesthetic services
	Alternatives:
	  A. (i) only B. (ii) only
	  C. (ii) & (iii) D. (i) & (ii)
		1
		
		1

19.	Read the following statements carefully:
	Statement 1: The British policies led to the collapse of India's world-famous handicraft industries.
	Statement 2: During the colonial rule in India, the contribution of the industrial sector to Gross Value Added (GVA) increased significantly.
	In light of the given statements, choose the correct option from the following:
	  A. Statement 1 is true and Statement 2 is false.
	  B. Statement 1 is false and Statement 2 is true.
	  C. Both Statements 1 and 2 are true.
	  D. Both Statements 1 and 2 are false.
		1

20.	Read the following statements: Assertion (A) and Reason (R). Choose the correct option from those given below: **Assertion (A):** The Education Commission (1964–66) had recommended that at least 4 % of Gross Domestic Product (GDP) be spent on education. **Reason (R):** The Union and State Governments, have been stepping up expenditures in the education sector over the years to fulfil the objective of attaining cent per cent literacy. Options:	1

	A. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). B. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A). C. Assertion (A) is true, but Reason (R) is false. D. Assertion (A) is false, but Reason (R) is true.	
21.	In the post-independence era, the policymakers of India adopted an economic system that fundamentally implies the coexistence of _____ and _____. (Choose the correct option to fill up the blank) A. small and large-scale industries B. small and medium-scale industries C. public and private sector D. private and foreign sector	1
22.	The institutional structure of rural banking in contemporary India consists of a set of multi-agency institutions, namely, _____. (Choose the correct option to fill up the blank) (i) Regional Rural Banks (ii) Cooperative Banks (iii) Land Development Banks (iv) Commercial Banks Options: A. (i) and (iv) B. (i), (iii) and (iv) C. (i), (ii) and (iii) D. (i), (ii), (iii), and (iv)	1
23.	Identify, which of the following statement is **incorrect** about the financial sector reform introduced in 1991? (Choose the correct option) A. Enabled the establishment of private sector banks, Indian as well as foreign B. Foreign investment limit in banks was raised to around 74% C. Foreign Institutional Investors were allowed to invest in Indian financial markets D. Change in the role of the Reserve Bank of India from facilitator to regulator	1
24.	China's demographic problem of 4-2-1, resulted in a higher proportion of elderly individuals compared to the younger population. This was primarily due to the implementation of _____. A. Great Leap Forward Campaign B. Great Proletarian Cultural Revolution C. One Child Norm D. Special Economic Zones	1
25.	_____ was setup in 1974 by the Indian government to address two major environmental concerns viz. water and air pollution. (Choose the correct option to fill up the blank) A. State Pollution Control Board B.Central Pollution Control Board C. Brundtland Commission D. Montreal Protocol	1
26.	"Assuming in a hypothetical economy, Real Gross Domestic Product recorded a growth rate of 9% during a fiscal year. However, the economy faced a significant challenge in terms of creating an adequate number of employment opportunities." Identify the situation indicated in the given statement and choose the correct option.	1
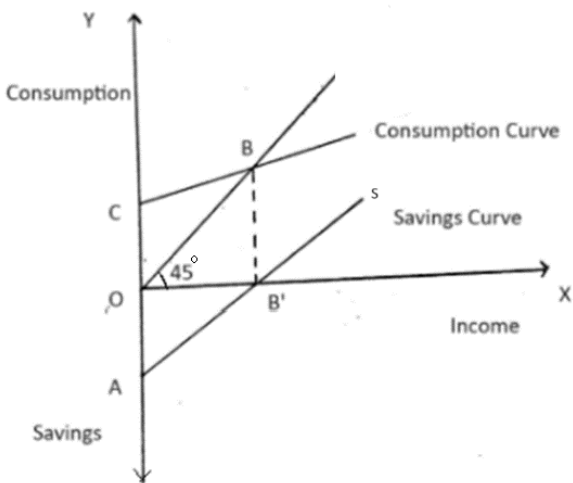
	A. Casualisation of workforce	B. Informalisation of workforce	
	C. Formalisation of workforce	D. Jobless growth	
27.	During the period 1951-2016, _____ led to an increase in the milk production in India by about ten times. (Choose the correct option to fill up the blank) A. Green Revolution B. Golden Revolution C. Operation Flood D. Industrial Revolution		1
28. (A)	Critically appraise the disinvestment policy initiated by the government during the reforms of 1991. **OR**		3
28. (B)	'Globalisation is an essential outcome of liberalisation of an economy'. Justify the given statement with a valid explanation.		3
29.	'To measure the extent of development in an economy, liberty indicators should be considered along with other socio-economic parameters.' Do you agree with the given statement? Give valid reasons in support of your answer.		3
30.	'The reform process implemented in the late 1970s, commonly known as China's open door policy, encompassed a wide range of reforms across sectors like agriculture, investment, industry etc. These reforms played a pivotal role in driving the rapid growth of the Chinese economy over subsequent decades.' In the light of the given text, discuss any two reforms responsible for the rapid economic growth of China.		4
31. (A)	'Under the Delhi Declaration, the G-20 nations pledged to reach global net zero emissions approximately by mid-century and to triple global renewable energy capacity by 2030.' Discuss briefly the rationale behind the commitment by G-20 nations in the direction of achieving sustainable development. **OR**		4
31. (B)	'It would be unclear to say that, the growth of human capital lays the ground for economic growth of a nation.' Do you agree with the given statement? Support your answer with valid illustrations.		4
32.	(I) Interpret the given picture based on the Saansad Adarsh Gram Yojana (SAGY) initiated by the Government of India. 		3

	(II) State any two examples of allied activities.	1
	For Visually Impaired Candidates in lieu of 32 (I) : Explain briefly the Saansad Adarsh Gram Yojana (SAGY) initiated by the Government of India.	3
33.	Read the following text carefully: Employment generation has remained one of the top challenges of Indian policymakers, and over the years, this has only become more complex. India has experienced more or less consistent growth in the structure of the output of the economy, especially after the economic reforms which is measured by gross value added. However, the trend in employment did not reveal a consistent and clear pattern. These complexities have led to a wide variation in the conclusions drawn by experts and various studies on workforce and employment. Two major sources of data on the workforce and employment have been the (i) decennial population census and (ii) nationwide quinquennial surveys on employment and unemployment by the erstwhile NSSO under the Ministry of Statistics and Programme Implementation (MoSPI), Government of India. The nationwide Employment and Unemployment (E&U) surveys have been replaced by the Periodic Labour Force Survey (PLFS) conducted by the National Statistical Office (NSO) of MoSPI, which started in the year 2017–18. According to NSO, the PLFS data measure the dynamics in labour force participation, workers to population ratio and the employment status along with related, important parameters for both rural and urban areas. Labour force includes persons who were either working (or employed) or those available for work (or unemployed). Some persons in the labour force are abstained from work for various reasons. Deducting that number from the labour force gives the number of actual workers. These workers are further categorised as persons who are engaged in any economic activity as self-employed or regular wage/salaried and casual labour. The difference between the labour force and the workforce gives the number of unemployed persons. The size of the labour force in the country has increased from 485.3 million in the year 2017–18 to 497.4 million in the year 2018–19. The next year, the labour force increased by 8 per cent and reached 537.9 million. This increase was witnessed across male and female populations as well as rural and urban households. Source:https://www.niti.gov.in/sites/default/files/2022-04/Discussion_Paper__on_Workforce_05042022.pdf (adapted and modified) On the basis of the given text and common understanding, answer the following questions: (I) State any two major sources of data on the workforce and employment. (II) 'The labour force encompasses a broader category than the workforce.' Defend or refute the statement, giving valid reasons in support of your answer. (III) 'Workers can be categorized into different types depending on their status.' In the light of the given statement, state any one type of employment.	 2 3 1

34. (A)	(I) 'Under the Industrial Policy Resolution (IPR) 1956 in India, the system of industrial licensing was introduced to promote regional equality.' Justify the given statement with valid arguments.	4
	(II) Discuss briefly the estimates made by notable scholars regarding the national income and per capita income during the colonial rule in India.	2
	OR	
34. (B)	(I) 'During the colonial period, India's foreign trade was characterized by a large export surplus, however, this did not result in any flow of gold or silver into India.' Justify the given statement with valid arguments.	3
	(II) Explain the rationale behind choosing 'Self-reliance' as a central planning objective in India's development strategy.	3

Q.NO.	SECTION A – MACRO ECONOMICS	MARKS
1.	D. Assertion (A) is false, but Reason (R) is true.	1
2.	C. Redistribution of income	1
3.	B. Net Product Taxes	1
4.	B. flexible	1
5.	A. (i) **For Visually Impaired Candidates:** B. 45^0	1 1
6.	B. fiscal	1
7.	A. Statement 1 is true and Statement 2 is false.	1
8.	D. Autonomous Consumption, Induced Consumption and Autonomous Investment	1
9.	C. Both Statements 1 and 2 are true.	1
10.	C. deficit, 0.74 **For Visually Impaired Candidates:** C. Receipts < Payments on current account	1 1
11. (A)	Domestic Income (NDP_{FC}) = i + iv + ii + iii + vii + vi – v – x – viii = 800+170+150+120+500+140–20 – 40 – 70 = ₹ 1,750 crore **OR**	1 ½ 1 ½
11. (B)	Steps pertaining to the estimation of National Income under the Income method: 1. Identify and classify production units into distinct heads namely primary, secondary, and tertiary sector. 2. Estimate and classify the factor payments in different categories as Compensation of Employees, Operating Surplus, and Mixed Income. The sum of factor payments represents the contribution of the sectors to Domestic Income (NDP_{FC}). 3. Finally, estimate and add the value of Net Factor Income from Abroad (NFIA) to arrive at National Income (NNP_{FC}).	 1 1 1
12.	Tax revenue collection by the government may be categorized as: • **Direct Taxes:** It refers to those taxes whose impact and incidence lie on the same entity. In other words, the liability of paying direct taxes can't be shifted.	 ½ + 1 ½ + 1

	• **Indirect Taxes:** It refers to those taxes whose impact and incidence may lie on different entities. In other words, the liability of paying indirect taxes can be shifted.	
13.	(I) Foreign Portfolio Investments in India in the fiscal year 2023-24 will be recorded on the credit side of the capital account of the Balance of Payments (BOP) account. It is recorded on the credit side, as it results in the inflow of foreign exchange. Furthermore, such transactions are documented in the capital account as they reflect the change in the ownership of financial assets between the residents of a country and rest of the world.	**3**
	(II) Balance of Payments deficit occurs when autonomous receipts fall short of autonomous payments during a given fiscal year in an economy.	**1**
14. (A)	Given consumption curve (C) intersecting 45° line at B (Break-even level of income). Steps for derivation of saving curve from the consumption curve are as follows: 1. Take OA on the negative intercept on Y-axis equals to OC (Autonomous consumption) having positive intercept on Y-axis, as a starting point of the saving curve.	**1**
	2. Draw a perpendicular from point B (where, Y=C) intersecting the X-axis at B' (where S=0) which is another point on the saving curve.	**1**
	3. Join point A to point B' extending the line till point S to get the saving curve (AS).	**1**
		1
	For Visually Impaired Candidates: Given consumption curve (C) intersecting 45° line at B (Break-even level of income). Steps for derivation of saving curve from the consumption curve are as follows: 1. Take OA on the negative intercept on Y-axis equals to OC (Autonomous consumption) having positive intercept on Y-axis, as a starting point of the saving curve. 2. Draw a perpendicular from point B (where, Y=C) intersecting the X-axis at B' (where S=0) which is another point on the saving curve. 3. Join point A to point B' extending the line till point S to get the saving curve (AS).	**4**
	OR	

14. (B)	Given, Autonomous Consumption ($\bar{c}$) = ₹ 40 crore Investment expenditure (I) = ₹ 100 crore For economy A, Marginal Propensity to Consume (MPC) = 0.6 For economy B, Marginal Propensity to Consume (MPC) = 0.8	
	(I) At break-even level for economy A; Y = C	½
	$\qquad$ Y= 40 + 0.6Y	½
	$\qquad$ 0.4Y = 40	½
	$\qquad$ Y= ₹ 100 crore	½
	(II) Equilibrium level of income for economy B; Y= C + I	½
	$\qquad$ Y= $\bar{c}$ + (MPC) x Y + I	½
	$\qquad$ Y= 40 + 0.8Y + 100	½
	$\qquad$ Y= ₹ 700 crore	½

15.	The working process of the increase in investment on the National Income, is based on the assumption that one's expenditure is another's income. In Round 1, the investment in infrastructure undertaken by the government of 1,000 crore, will generate an additional income by the like amount (1,000 crore). Since Marginal Propensity to Save (MPS) is 0.2 i.e. MPC is 0.8 it will lead to an increase in the consumption expenditure by 800 crore (80% of 1,000) and saving by 200 crore (20% of 1,000). As one's expenditure is another's income, an increase in consumption expenditure results in an increase in income by 800 crore in the subsequent round. This process continues till the sum of the change in savings becomes equal to the change in the investment.	4

Round	Increase in investment (ΔI) (in crore)	Increase in income (ΔY) (in crore)	Increase in consumption (ΔC) (in crore)	Increase in savings (ΔS) (in crore)
1	1,000	1,000	800	200
2	—	800	640	160
3	—	640	512	128
—	—	.	.	.
Total	1,000	5,000	4,000	1,000

Investment Multiplier = $\frac{1}{1-MPC}$

$\qquad = \frac{1}{1-0.8} = 5$

Thus, the above schedule indicates that an increase in investment (ΔI) of 1,000 crore leads to a total increase in national income (ΔY) by 5,000 crore, which is 5 times the increase in investment.

16.	(I) The evolution of money has taken place over the centuries in different forms such as:	
	• Metal currencies: Gold or silver coins (which have intrinsic value) were used for economic transactions as these were used as standardised representation of value.	½ + 1
		½ + 1

	• Paper currency: Currency is issued in paper (or polymer) form by the Central Bank. It is a liability of the issuing Central Bank and an asset of the holding public.		
	(II) Yes. The introduction of CBDC provides significant benefits such as reduced dependency on cash, lower transaction costs, and reduced settlement risk. It leads to a more robust, efficient, trusted, and regulated payment option. However, there are associated risks such as cyber-attacks and technology preparedness, but they need to be carefully evaluated against the potential benefits.	**3**	

17. (A)	(I) Percentage change in Real GDP = $\dfrac{\text{Change in Real GDP}}{\text{Real GDP}}$ X 100	**1 ½**
	$= \dfrac{(4,500 - 4,000)}{4,000}$ x 100	**1**
	= 12.5 %	**½**
	(II) The public investment on the construction of a multi-lane flyover may impact the Gross Domestic Product (GDP) positively as good quality infrastructure (like an effective transport system) generally attracts higher investments in an economy and may lead to an increase in employment opportunities. It may also lead to a reduction in travel time and lower average transportation costs. Consequently, it may increase the well-being of citizens.	**3**
	OR	
17. (B)	(I) The given statement is defended. Consumption goods are those goods that directly satisfy the wants of the consumer whereas, capital goods are those final goods that are used for further production. A good can be considered as a consumption good or a capital good. It depends upon the economic nature of its use. For example, machinery purchased by a household can be classified as a consumption good whereas, if it is purchased by a firm for further production, then as a capital good.	**4**
	(II) The massive destruction of capital assets caused by the recent natural calamities in the hill states of Himachal Pradesh and Uttarakhand can be considered as capital loss. Capital loss refers to the loss in the value of fixed assets due to unforeseen circumstances like natural disasters, theft, fires, etc.	**2**

<div align="center">

SECTION B – INDIAN ECONOMIC DEVELOPMENT

</div>

18.	A. (i) and (ii) **For Visually Impaired Candidates:** A. (i) only	1 1
19.	A. Statement 1 is true and Statement 2 is false.	1
20.	D. Assertion (A) is false, but Reason (R) is true.	1
21.	C. public and private sector	1
22.	D. (i), (ii), (iii), and (iv)	1
23.	D. Change in the role of the Reserve Bank of India from facilitator to regulator	1

24.	C. One Child Norm	1
25.	B. Central Pollution Control Board	1
26.	D. Jobless Growth	1
27.	C. Operation Flood	1
28. (A)	Disinvestment aimed to boost financial discipline and modernisation. The government exceeded its mobilisation target but assets of Public Sector Enterprises (PSEs) had been undervalued, resulting in significant losses to the government. Moreover, the proceeds were primarily used to cover shortfalls of government revenue instead of investing in social infrastructure or the development of PSE. **OR**	3
28. (B)	Globalisation is indeed an essential outcome of liberalisation of an economy. The removal or reduction of restrictions in the industrial sector, financial sector, trade and investment policy etc. opened the doors of the Indian economy to the rest of the world. Hence, liberalisation acted as a catalyst for globalisation. It fostered international trade integrating the Indian economy with the global economy.	3
29.	Yes. Measurement of the development level in an economy is a comprehensive approach where liberty indicators should be considered along with other socio-economic parameters. Liberty indicators measure the extent of democratic participation in social and political decision-making. These indicators are significant as they reflect the degree of civil liberties, political rights and economic freedom within a society. With the incorporation of liberty indicators, policymakers can gain a more holistic understanding of an economy's development status.	3
30.	The fast-paced economic growth in China can be traced back to the following reforms introduced in 1978: • In the initial phase, reforms were initiated in agriculture, foreign trade and investment sectors. For instance, in agriculture commune lands were divided into small plots, which were allocated to individual households. They were allowed to keep all income from the land after paying stipulated taxes. • In the subsequent phase, reforms were initiated in the industrial sector. Private sector firms, in general, and township and village enterprises, in particular, were allowed to produce goods. At this stage, State Owned Enterprises were made to face competition.	2 2
31. (A)	Under the Delhi Declaration, the G-20 member countries have agreed to elevate efforts to limit Global Warming. To achieve this, these nations have decided to reduce greenhouse gas emissions. It has been agreed to devise an effective approach to transitioning from conventional sources of energy to non-conventional sources of energy. Wind energy and solar power serve as good illustrations of environmental friendly sources of energy that contribute to achieving sustainable development. **OR**	4
31.		

(B)	An increase in human capital causes economic growth is unclear, owing to the problems pertaining to the estimation of quantifiable relation between the two. Educational yardsticks like years of schooling, teacher-pupil ratio, enrolment rates etc. may not reflect educational quality accurately. Whereas, human capital measures may show convergence between developing and developed nations, however, there's no empirical evidence to prove income per capita convergence. Hence, education may improve, but cannot guarantee similar progress in real income across different countries.	**4**
32.	(I) Under the Saansad Adarsh Gram Yojana (SAGY), introduced by the Government of India, Members of Parliament (MPs) need to identify and develop one village from their constituencies. MPs were to develop three villages as model villages, covering over 2,500 villages. MPs were expected to facilitate a village development plan, motivate villagers to take up activities and build infrastructure in the areas of health, nutrition, and education. (II) Two examples of allied activities are: • Livestock • Fisheries **For Visually Impaired Candidates in lieu of 32 (I) :** Under the Saansad Adarsh Gram Yojana (SAGY), introduced by the Government of India, Members of Parliament (MPs) need to identify and develop one village from their constituencies. MPs were to develop three villages as model villages, covering over 2,500 villages. MPs were expected to facilitate a village development plan, motivate villagers to take up activities and build infrastructure in the areas of health, nutrition, and education.	**3** ½ ½ **3**
33.	(I) Two major sources of data on the workforce and employment: • decennial population census • nationwide quinquennial surveys by NSSO (II) The given statement is defended. Labour force refers to the number of persons who are either employed or unemployed, whereas, workforce refers to all the people who are actively engaged in economic activities. Hence, labour force is a wider term than the workforce. (III) Self-employed are those workers who own and operate an enterprise to earn their livelihood.	**1** **1** **3** **1**
34. (A)	(I) Under the Industrial Policy Resolution (IPR) 1956, the policymakers reserved a category of industries for the private sector, however, the sector was kept under state control through a system of licenses. No new industry was allowed unless a license was obtained from the government. It was easier to obtain a license if the industrial unit was established in an economically backward area. In addition, such units were given certain benefits such as tax holidays and subsidised electricity. The purpose of this policy was to promote regional equality. (II) Several notable scholars, such as Dadabhai Naoroji, William Digby, Findlay Shirras, V.K.R.V. Rao, and R.C. Desai, made earnest efforts to	**4**

	calculate national income during the colonial era. Among these scholars, the estimates provided by V.K.R.V. Rao were considered very significant. However, the majority of these studies revealed that the country's overall real output growth during the first half of the 20th century remained below 2%, with a meagre annual per capita output growth of just 0.5%.	**2**
	OR	
(B)	(I) Throughout the colonial period, India's foreign trade was characterized by a significant export surplus. However, this surplus had detrimental consequences for the country's economy. This export surplus did not bring gold or silver into India. Instead, it was used to cover expenses incurred by an office set up by the colonial government in Britain, the expenses on the war fought by the British government, and the import of invisible items, all contributed to the drain of India's wealth.	**3**
	(II) 'Self-reliance' was adopted as a central planning objective in India's development strategy by the policymakers due to the following reasons:	
	• To reduce the dependence on foreign nations, the stress was laid on mobilising domestic resources.	**1 ½**
	• It was feared that the dependence on imported food supplies, foreign technology, and foreign capital may increase foreign interference in our policies.	**1 ½**

POLITICAL SCIENCE (028)
SAMPLE QUESTIONPAPER
CLASS XII (2024-25)

Time allotted: 3 hours   **Maximum Marks: 80**

General Instructions:

Read the following instructions very carefully and follow them:

1. This question paper contains 30 questions. All questions are compulsory.
2. Question paper is divided into five sections A, B, C, D and E.
3. **Section A** questions number 1 to 12 are Multiple Choice type questions. Each question carries 1 mark.
4. **Section B** questions number 13 to 18 are Short Answer type questions. Each question carries 2 marks. Write answer to each question in 50 to 60 words.
5. **Section C** questions number 19 to 23 are Long Answer Type -I question. Each question carries 4 marks. Write answer to each question in 100 to 120 words.
6. **Section D** questions number 24 to 26 are Passage, Cartoon and Map-based questions. Answer each question accordingly.
7. **Section E** questions number 27 to 30 are Long Answer type-II questions. Each question carries 6 marks. Write answer to each question in 170 to 180words.
8. There is no overall choice in the question paper. However, an internal choice has been provided in few questions. Only one of the choices in such questions has to be attempted.
9. In addition to this, note that a separate question has been provided for Visually Impaired candidates in lieu of questions having visual inputs, map etc. Such questions are to be attempted by Visually Impaired candidates only

SECTION–A (12x1=12 MARKS)

1   The collapse of Soviet Union was followed by Shock Therapy. Which of the following   1
    statements is **NOT** correct about Shock Therapy?

   A) The transition involved a breakup of the existing trade alliances among the countries of the Soviet bloc.

   B) Shock therapy involved a drastic change in the external orientation of these economies.

   C) FDI and free trade were to be the main engines.

   D) The Eastern capitalist states guided and controlled the development of the region.

2   In the following question, a statement of Assertion (A) is followed by a statement of   1
    Reason(R). Choose the appropriate answer from the options given below as the
    correct answer:

   Assertion (A): In December 1991, under the leadership of Yeltsin, Russia, Ukraine and Georgia, three major republics of the USSR, declared that the Soviet Union was disbanded.

   Reason(R): The rise of nationalism led to various protests in Post-Soviet Republics.
   Options:
   A) Both A and R are true, and R is the correct explanation of A.
   B) Both A and R are true, but R is not the correct explanation of A.
   C) A is true, but R is false.
   D) A is false, but R is true.

3 Match the terms given in column 'A' correctly with their meaning given in column 'B' and choose the appropriate code as the correct answer:

1

	Column 'A'	Column 'B'
I	Confidence building measure	(i) Giving up certain types of weapons
II	Arms Control	(ii) A process of exchanging information on Defense matters between nations on a regular basis.
III	Alliance	(iii) A coalition of nations meant to deter or Defend against military attacks.
IV	Disarmament	(iv) Regulates the acquisition or development of weapons.

Codes:

A) I-(ii), II-(iv), III-(iii), IV-(i)

B) I-(ii), II-(i), III-(iii), IV-(iv)

C) I-(ii), II-(i), III-(iv), IV-(iii)

D) I-(iv), II-(ii), III-(iii), IV-(i)

4 In recent times, most of the armed conflicts have taken place in:

1

A) Eastern Europe

B) South Asia

C) Middle East Asia

D) Sub-Saharan Africa

5 Given below are two statements:

1

Statement I: Resource geopolitics pertains to the allocation of resources during the cold war.

Statement II: Oil is considered as the most important resource in global politics.

In the light of above statements, choose the correct answer from the options given below:
A) Both statement I and Statement II are true
B) Both statement I and Statement II are false.
C) Statement I is true, but Statement II is false.
D) Statement I is false, but Statement II is true.

6 Arrange the following in chronological order of their formation:

1

I) Energy Conservation Act
II) Paris Climate Agreement
III) The Electricity Act
IV) Montreal Protocol

Choose the correct option:
A) (I), (II), (III), (IV)
B) (II), (IV), (I), (III)

C) (IV), (I), (III), (II)

D) (III), (I), (II), (IV)

7 The "Era of One-Party Dominance" in India refers to the period from_____: 1

A) 1952 to1962

B) 1977 to1984

C) 1989 to 1996

D) 1998 to 2004

8 Identify and write the Incorrect pair: 1

A) Dr. B.R Ambedkar– Chairman of Drafting Committee of the Indian Constitution

B) Maulana Abul Kalam Azad–India's first Education Minister

C) Rajkumari Amrit Kaur— India's first Health Minister

D) Acharya Narendra Dev—Founding President of the Communist Party of India.

9 Which conference marked the zenith of India's engagement with the newly   1
independent Asian and African nations?

    A)   Malaysian Conference
    B)   Singapore Conference
    C)   Bandung Conference
    D)   Egyptian Conference

10 Which of the following issues led to the attack on Egypt in 1956 by Britain?   1

    A) Suez Canal issue
    B) Suzhou Canal issue
    C) Panama Canal issue
    D) Bruges Canal issue

11 'Bodo' is a community in_____state of India.   1
    A) Arunachal Pradesh
    B) Assam
    C) Manipur
    D) Mizoram

12 The States Reorganization Commission (SRC), appointed in 1953, recommended the   1
reorganization of states based on which principle?
A) Economic viability
B) Geographical contiguity
C) Linguistic unity
D) Historical significance

SECTION-B (6x2=12 MARKS)

13 'Nuclear weapons as deterrence or defense have limited usage against   2
contemporary security threats to states.' Explain the statement.

14 Show with the help of two examples that involvement of USA in South Asia has   2
increased after the end of Cold War.

15 It is now an almost universally-accepted view that countries should only go   2
to war for the right reasons. Explain with an example.

16 Did the prevalence of 'one-party dominance' in India affect the democratic nature of Indian politics? Express your opinion. 2

17 Why did India's general elections of 1952 become a landmark in the history of democracy all over the world? Give two reasons. 2

18 List the two development models and explain how the model adopted by India influenced India's economic policies. 1+1=2

SECTION-C (5x4=20 MARKS)

19 List four Directive Principles of State Policy that aim to promote international peace and security 4

20 Describe the events that led to the merger of Sikkim with India. 4

21 A) "Soviet Union's disintegration was the consequence of many different factors". Justify the statement 4

OR

B) 'Most former Soviet republics had tensions and conflicts.' Support the statement with examples.

22 A) Analyse any two political consequences of globalization 4

OR

B) Analyse any two reasons for resistance to globalisation in India.

23 Highlight the factors that led to a multi-party alliance system in Indian politics since 1989. 2+2=4

SECTION-D (3x4=12 MARKS)

24 **Study the picture given below and answer the questions that follow:** 1+1+1+1=4

Global Warming   © Ares, Cagle Cartoons Inc.

Source-NCERT-Class XII- Contemporary World Politics-page 83

Choose the most appropriate option:

I) What does the lighter in the cartoon symbolize?
    A) The Earth being consumed as a source of fuel
    B) The continents being burned for energy
    C) The world being used up for power
    D) The oceans being exploited for its resources

II) Why are the fingers in the cartoon designed like chimneys?
    A) To represent humans are supporting earth
    B) To show only humans are causing global warming
    C) To show importance of chimneys in cleaning factories
    D) To show importance of industrial revolution

III) The main theme of the cartoon could be:
    A) The celebration of technological advancement
    B) The impact of deforestation on wildlife
    C) The role of industrial pollution in global warming
    D) The importance of reducing waste to save planet

IV) Thicker chimney has been shown on the push button of the lighter to show that_____
    A) only humans can stop pollution
    B) only developed countries contribute to pollution
    C) pollution can be curbed by shutting factories
    D) chimneys need to be made more efficient to save earth.

24.1 **Following questions are for the Visually Challenged candidates in lieu of question number 24**   1+1+1+1=4

I) What principle recognized in the Rio Declaration addresses the differing responsibilities of developed and developing countries in environmental conservation?
II) What was the aim of Kyoto Protocol?
III) In which year and city was the Kyoto Protocol agreed upon?
IV) What is meant by "Agenda 21"?

25 In the given outline political map of India, four states have been marked as (A), (B), (C) and (D). Identify these states on the basis of the information given below and write their correct names in your answer book along with the respective serial numbers of the information used and the concerned alphabets as per the format that follows: 1+1+1+1=4

Sr. Number for the Information used	Concerned alphabet given in the map	Name of the State
I		
II		
III		
IV		

I) The state related to the leader who coined the famous slogan 'Jai Jawan-Jai Kisan.
II) The state associated with the formation of DK, DMK and AIADMK
III) The state where a coalition called the 'Popular United Front' came to power after   1967 election
IV) The official Congress candidate for the 1969 Presidential election belonged to this state
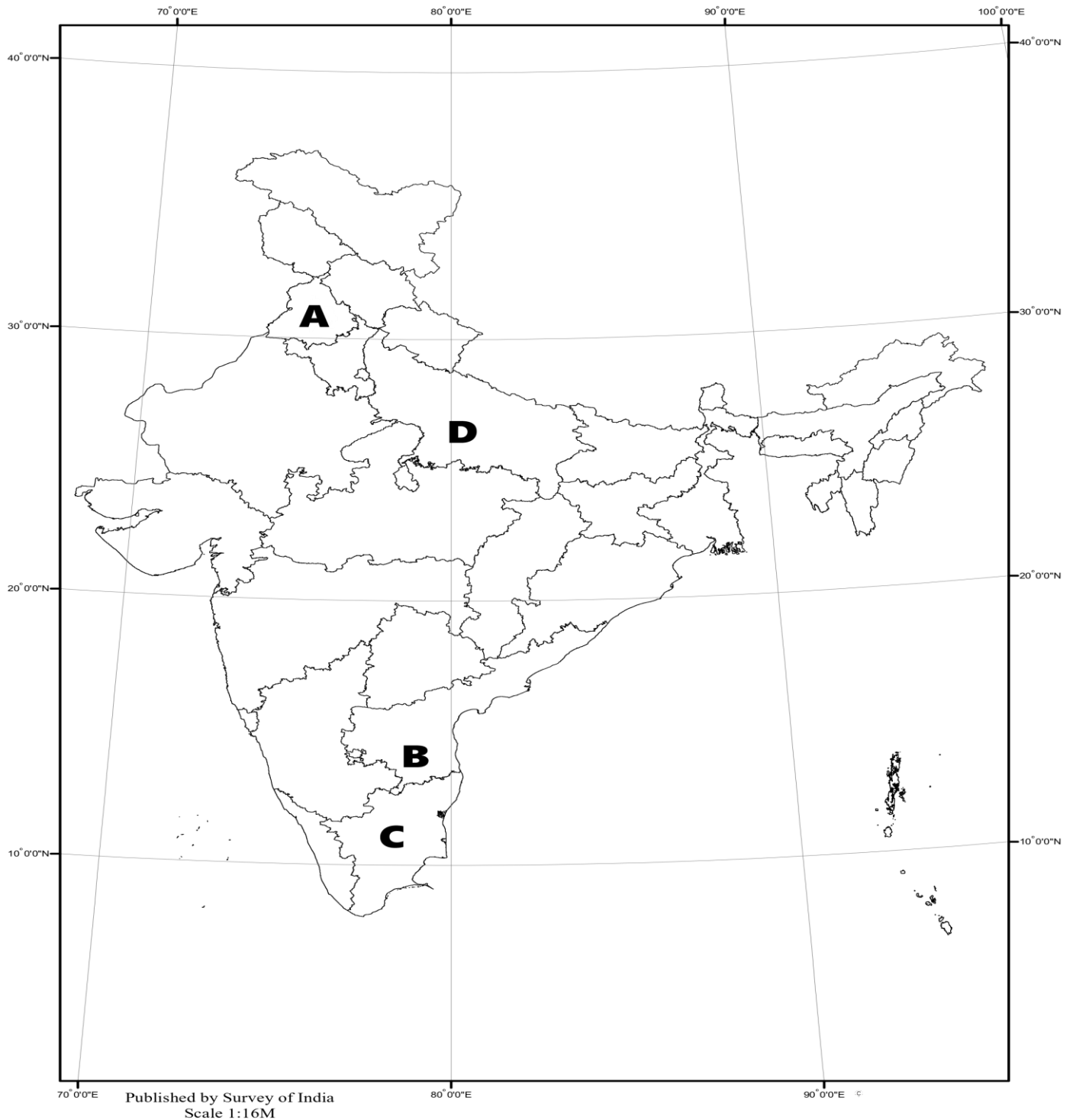
Note: Following questions are for the Visually Challenged Candidates in lieu of question number 25.   1+1+1+1= 4

Name the following:

  I) The state where Operation Blue star was launched
  II) The state which declared its Independence from India in 1951
  III) The state that attained state hood in 2014
  IV) The state over run by China in1962 war.

26 **Read the passage and choose the most appropriate answer for the questions given below:**   1+1+2= 4

In spite of the many conflicts, the states of South Asia recognise the importance of cooperation and friendly relationship, among themselves. The South Asian Association for Regional Cooperation (SAARC) is a major regional initiative by the South Asian states to evolve cooperation through multilateral means. It began in 1985. Unfortunately, due to persisting political differences, SAARC has not had much success. SAARC members signed the South Asian Free Trade (SAFTA) agreement which promised the formation of a free trade zone for the whole of South Asia

  I) Which of the following was the primary goal of establishing South Asian Association for Regional Cooperation (SAARC)?
    A) To create a unified military force
    B) To enhance mutual support
    C) To develop a common currency
    D) To resolve territorial disputes among member states

  II) What was the main objective of the South Asian Free Trade Agreement (SAFTA)?
    A) To create safer environment for investment.
    B) To establish free and fare market place.
    C) To form chamber of South Asian Association of Commerce.
    D) To promote business through cultural ties.

  III) Explain the significance of SAARC in South Asia and the factor which led to the limited success of SAARC.

SECTION-E (4X6=24MARKS)

27 **A)** Examine the impact of any three political developments that India witnessed between the periods 1989 to 1999.   6

OR

B) "The elections of 1989 marked the end of the congress system and rise of the coalition era". Support the statement with any three arguments.

28 A) Describe the socio-economic effects of the Partition of British India in 1947.   6

<div align="center">

OR

</div>

B) Language has always played an imperative role in uniting the country. Explain the statement in the context of challenge of nation building in India after independence.

29 A) Evaluate the effectiveness of the European Union as the most prominent regional organization.   6

<div align="center">

OR

</div>

B) Support with arguments that South Korea is emerging as a new alternate center of power.

30 A) "After the end of the Cold War, the United Nation is working in accordance with the changed realities of the world". Justify the statement with six arguments.   6

<div align="center">

OR

</div>

B) "The United Nations was not created to take humanity to heaven, but to save it from hell." Support the statement with relevant examples.

MARKING SCHEME
POLITICAL SCIENCE (028)
CLASS-XII (2024-25)

Time:3 hours   **Maximum Marks: 80**

Q. No	Answers	Marks
	SECTION A (12x1=12 Marks)	
1	D) The Eastern capitalist states guided and controlled the development of the region.	1
2	D) A is false, but R is true.	1
3	(A) I-(ii), II-(iv), III-(iii), IV-(i)	1
4	D) Sub-Saharan Africa	1
5	A) Both Statement I and Statement II are true.	1
6	C) (IV), (I), (III), (II)	1
7	A) 1952 to1962	1
8	D) Acharya Narendra Dev-Founding President of the Communist Party of India.	1
9	C) Bandung Conference	1
10	A) Over Suez Canal issue	1
11	B) Assam	1
12	C) Linguistic unity	1
	SECTION B (6x2=12 Marks)	
13	i) Nuclear weapons have limited usage due to the arms-control method of cooperation. One of the arms-control treaties was the Nuclear Non-proliferation Treaty (NPT) of 1968 to regulate the acquisition of nuclear weapons. ii) In traditional security, there is recognition that cooperation in limiting violence is possible. These limits relate both to the ends and the means of war. Contemporary threats to security require cooperation rather than military confrontation. **(OR Any other relevant point)**	2
14	i) The United States has had good relations with both India and Pakistan since the end of the Cold War and increasingly works as a moderator in India-Pakistan relations. ii) The Economic reforms and liberal economic policies in both countries have greatly increased the depth of American participation in the region. iii) The large South Asian diasporas in the US and the huge size of the population and markets of the region also give America an added stake in the future of regional security and peace. **(Any two OR Any other relevant point)**	2
15	i) It should primarily be for self-defense or to protect other people from genocide. For example, the worst humanitarian crisis in Darfur, Sudan. ii) War must also be limited in terms of the means that are used. Armies must avoid killing or hurting noncombatants as well as unarmed and surrendering combatants. iii) They should not be excessively violent. iv) Force must in any case be used only after all the alternatives have failed. **(Any two points or other relevant example)**	2

1

16	i) The Congress accommodated diversified interests, religions, beliefs, and aspirations to strengthen democracy. ii) By the time of independence, the Congress was transformed into a rainbow-like social coalition broadly representing India's diversity in terms of classes and castes, religions and languages, and various interests. iii) It accommodated the revolutionary and pacifist, conservative and radical, extremist, and moderate, and the right, left, and all shades of the centre. The inclusive character of the national movement led by the Congress enabled it to attract different sections, groups and interests, making it a broad-based social and ideological coalition. iv) Despite differences regarding the methods, specific programmes, and policies the party managed to contain if not resolve differences and build a consensus, there by strengthened the democratic nature of Indian politics. **(Any two points)**	**2**
17	Due to the size of the Indian electorate and the country, the election was unusual. No election on this scale had ever been conducted in the world before. To prepare the electoral rolls, or the list of all the citizens eligible to vote was a challenging task Moreover, it was the first big test of democracy in a poor and illiterate country with narrow loyalties in terms of caste, religion, language etc.	**2**
18	i) In the Congress session held at *Avadi* near the then Madras city, an important resolution was passed. It declared that 'socialist pattern of society' was its goal. The government imposed substantial tariffs on imports in order to protect domestic industries. Such protected environment helped both public and private sector industries to grow. As savings and investment were growing in this period, a bulk of these industries like electricity, railways, steel, machineries and communication could be developed in the public sector. ii) Such a push for industrialization marked a turning point in India's development. **(Both the points)**	**1+1=2**

SECTION C (5x4=20 Marks)

19	Directive Principles of State Policy for the promotion of international peace and security: The state shall endeavour to: (i) Promote international peace and security. (ii) Maintain just and honourable relations between nation. (iii) Foster respect for international law and treaty obligations in the dealings of organized people with one another. (iv) Encourage settlement of international disputes by arbitration **(Or Any other relevant point)**	**4**
20	The story of Sikkim from the time of India's independence to its merger with India is as follows: i) At the time of independence, Sikkim was a protectorate of India. It meant that while it was not a part of India, it was also not a fully sovereign country. ii) Sikkim's monarch was Chogyal who was unable to deal with the democratic aspirations of the people. iii) The Chogyal was seen as perpetuating the rule of a small elite from the minority Lepcha, Bhutia community. The anti-Chogyal leaders of both communities sought and got support from the Government of India. iv) The first assembly of Sikkim which was elected in 1974 was swept by Sikkim Congress and it sought the status of associate state and in April 1975 passed a resolution asking for full integration with India. After an organised referendum, Sikkim became the 22nd State of the Indian Union **(All points)**	**4**

21	**A)**	**4**
	i) The internal weaknesses of Soviet political and economic institutions failed to meet the aspirations of the people.	
	ii) Economics tag nation for many years led to severe consumer shortages and a large section of Soviet society began to doubt and question the system and to do so openly.	
	iii) The Soviet Union had become stagnant in an administrative and political sense as well. The Communist Party that had ruled the Soviet Union for over 70 years was not accountable to the people. Ordinary people were alienated by slow and stifling administration, rampant corruption, the inability of the system to correct mistakes it had made, the unwillingness to allow more openness in government, and the centralisation of authority in a vast land.	
	iv) The Soviet economy used much of its resources in maintaining a nuclear and military arsenal and the development of its satellite states in Eastern Europe and within the Soviet system. This led a huge economic burden that the system could not cope with.	
	v) When Gorbachev became the President, he carried out reforms and loosened the system. He set in motion forces and expectations that few could have predicted and became virtually impossible to control. There were sections of Soviet society which felt that Gorbachev should have moved much faster and were disappointed and impatient with his methods. Others, especially members of the Communist Party and those who were served by the system, took exactly the opposite view. In this tug of war, Gorbachev lost support on all sides.	
	vi) The rise of nationalism and the desire for sovereignty within various republics including Russia and the Baltic Republics, Ukraine, Georgia, and others proved to be the final and most immediate cause for the disintegration of the USSR.	
	(Any four points/ Or Any other relevant point)	
	OR	
	B)	
	I) Chechnya and Dagestan had violent secessionist movements. Moscow's method of dealing with Chechen rebels and indiscriminate military bombings led to many human rights violations but failed to deter the aspirations for independence.	
	II) In Central Asia:	
	i) Tajikistan witnessed a civil war that went on for ten years till 2001.	
	ii) In Azerbaijan's provinces of Nagorno-Karabakh, some local Armenians want to secede and join Armenia.	
	iii) In Georgia, the demand for independence came from two provinces result in a civil war.	
	iv) There are still movements against the existing regimes in Ukraine, Kyrgyzstan and Georgia.	
	v) Even countries and provinces are fighting over river water.	
	(All points)	
22	A. **Political Consequences:**	**4**
	a) Globalization results in an **erosion of state capacity.**	
	i) The old 'welfare state' is now giving way to a more minimalist state.	
	ii) In place of the Welfare state, it is the market that becomes the prime determinant of economic and social priorities. The entry and the increased role of MNC all over the world leads to a reduction in the capacity of governments to take decisions on their own.	
	b) Does not always reduce state capacity	
	i) The state continues to discharge its essential functions like law and order.	
	ii) State withdraws from certain domains from which it wishes to.	
	(c) State capacity has received a boost	
	i) With enhanced technologies the state can collect information about its citizens.	
	ii) States have become more powerful than they were earlier as an outcome of the new	

	technology. (**Any two OR Any other relevant point/s**)	
	OR **B)** Resistance to globalization in India has come from different quarters: i) The left using protests to economic liberalization was voiced through political parties as well as through forums like the Indian Social Forum. ii) Trade Unions and farmers' interests have also organized protests against MNCs. iii) The patenting of certain plants like Neem by American and European firms has also generated protests. iv) Resistance has come from political parties also in the form of objecting to various cultural influences like the availability of foreign T.V. channels provided by cable networks, and Westernization. **(Or any other relevant point/s)**	4
23	i. In 1967 elections, the opposition parties realised that the division of their votes kept the Congress in power. This led to formation of anti-Congress fronts and rise of 'non-Congressism' in Indian politics. This brought the opposition together. As a result of it, coalition governments were formed in eight states which included Punjab, Haryana. UP, Madhya Pradesh, Bihar and other states. ii. In the elections of Lok Sabha in 1971 and State Assembly elections in 1972, Congress achieved victories, but the Congress under Indira Gandhi did not have the capacity to absorb all tensions and conflicts that the 'Congress system' was known for. iii. The declaration of emergency in 1975 once again brought the opposition together. Janata Party was formed and it came to power in 1977. Janata Party could not remain united. It lacked direction, leadership and a common programme. Congress once again won elections held in 1980 and 1984.The opposition parties too started to rely on Non-Congress iv. In 1989 elections, the Congress was the largest party but it was in the opposition. The National Front government, an alliance of Janata Dal and some regional parties, was formed. The election of 1989 marked the end of Congress dominance and beginning of coalition governments because after this one or two parties never got most of the votes or seats. No single party secured a clear majority of seats in any Lok Sabha elections. This initiated an era of coalition government at the Centre in which regional parties played a crucial role in forming ruling alliance **(Or any other relevant point)**	4
	SECTION-D (3x4=12 Marks)	
24	I) A) The Earth being consumed as a source of fuel II) B) To show only humans are causing global warming III) C) The role of industrial pollution in global warming IV) A) only humans can stop pollution	1+1+1+1
	Following questions are for the Visually Impaired candidates in lieu of question number 24: **I)** The principle of "common but differentiated responsibilities." **II)** The Kyoto Protocol primarily aims to set targets for industrialized countries to cut their greenhouse gas emissions. **III)** 1997 in Kyoto, Japan. **IV)** a comprehensive plan of action adopted at the Earth Summit in 1992, aimed at promoting sustainable development globally.	1+1+1+1

25	Sr. Number for the Information used	Alphabet Concerned	Name of the states		1+1+1+1
	I)	D	Uttar Pradesh		
	II)	C	Tamil Nadu		
	III)	A	Punjab		
	IV)	B	Andhra Pradesh		

	Note: Following questions are for the Visually Challenged Candidates in lieu of question number 25. Name the following: I) Punjab II) Nagaland III) Telangana IV) Arunachal Pradesh	1+1+1+1

26	**I) B)** To enhance mutual support **II) B)** To establish free and fare market place. **III)** SAARC promotes cooperation and strengthens friendly relationships among the South Asian states through multilateral means**.** It aims to address shared challenges and foster economic, social, and cultural development. SAARC faced persistent political differences among its member	1+1+2

SECTION E (4x6=24Marks)

27	**A)** i) First the most crucial development of this period was the defeat of the Congress party in the elections held in1989. The party that had won as many as 415 seats in the Lok Sabha in 1984 was reduced to only 197 in this election. The Congress improved its performance and came back to power soon after the mid - term elections held in 1991. But the elections of 1989 marked the end of what political scientists have called the ' Congress system '. ii) Second development was the rise of the 'Mandal issue' in national politics. This followed the decision by the new National Front government in 1990, to implement the commendations of the Mandal Commission that jobs in central government should be reserved for the Other Backward Classes. This led to violent ' anti - Mandal 'protests in different parts of the country. iii) The economic policy followed by the various governments took a radically different turn. This is known as the initiation of the structural adjustment programme or the new economic reforms. Started by Rajiv Gandhi, these changes first became very visible in 1991 and radically changed the direction that the Indian economy had pursued since Independence. iv) A number of events culminated in the wake of the demolition of the disputed structure at Ayodhya (known as Babri Masjid) in December 1992. This event symbolised and triggered various changes in the politics of the country and intensified debates about the nature of Indian nationalism and secularism. v) The assassination of Rajiv Gandhi in May 1991 led to a change in leadership of the Congress party. He was assassinated by a Sri Lankan Tamil linked to the LTTE when he was on an election campaign tour in Tamil Nadu. In the elections of 1991, Congress emerged as the single largest party. Following Rajiv Gandhi's death, the party chose Narsimha Rao as the Prime Minister. **(Any three developments)** **OR** **B)** i) In the 1989's elections, the party had won only 197 seats, which was very low in comparison to 1984 elections where the party won 415 seats. Congress boosted up its performance and finally it came back to power in 1991, after Rajiv Gandhi's assassination. But the elections of 1989 marked the end of what political scientists have	2+2+2

called the 'Congress system'. Congress remained as major party but it lost its dominance as it enjoyed earlier in the party system.

ii) With the elections of 1989, a long phase of coalition politics began in India. Since then, there have been eleven governments at the Centre, all of which have either been coalition governments or minority governments supported by other parties, which did not join the government.

iii) In this new phase, any government could be formed only with the participation or support of many regional parties.

iv) This applied to the National Front in 1989, the United Front in 1996 and 1997, the NDA in 1997, the BJP-led coalition in 1998, the NDA in 1999, the UPA in 2004 and 2009. However, this trend changed in 2014.

v) Following 1989 no single party received most votes or seats in any Lok Sabha election conducted between 1989 and 2014.

vi) This brought in an era of coalition governments at the centre, with regional parties playing a critical role in building major coalitions.
(Any three or Any other relevant point/s)

28	A)	
	i) On both sides of the border, there were large-scale killings and atrocities. In the name of religion, people of one community killed the people of another community. Minorities were forced to abandon their homes and move across borders. Even during their journey, they were often attacked, killed, and looted. On both sides, thousands of women were raped, abducted, and killed. The partition forced about 80 lakh people to migrate across the new border. More than five lakh people were killed due to partition.	6

ii) The people who crossed the border found that they had no home. For lakhs of people independence meant life in 'refugee camps'. The Indian leadership and the Government of India had to face, this immediate and unexpected problem. The refugee problem was so serious that the Government took many years to solve it.

iii) Even after large-scale migration of Muslims to Pakistan, about 12 percent of the total population of India was Muslims. The biggest problem before the Indian Government was how to deal with Muslim minorities and other religious minorities.

iv) Partition also meant the division of properties, liabilities, and financial assets. The employees of the government and railways were also divided.

v) The creation of India and Pakistan disrupted the existing trading networks.

vi) Due to the partition, Bengal was divided into East Bengal (now Bangladesh) and West Bengal. Similarly, Punjab was divided into the Punjab province of West Pakistan and the Indian state of Punjab.
(Any four or Any other relevant point/s)

OR

B)

i) After Independence and partition, our leaders felt that carving out states on the basis of language might lead to disruption and disintegration. It was also felt that this would draw attention away from other social and economic challenges that the country faced

ii) The formation of Andhra Pradesh spurred the struggle for making of other states on linguistic lines in other parts of the country.

iii) These struggles forced the Central Government into appointing a States Reorganization Commission in 1953 to look into the question of redrawing of the boundaries of states. The Commission in its report accepted that the boundaries of the state should reflect the boundaries of different languages.

iv) Linguistic states and the movements for the formation of these states changed the nature of democratic politics and leadership in some basic ways.

v) The path to politics and power was now open to people other than the small English-speaking elite.

vi) Linguistic reorganization also gave some uniform basis to the drawing of state boundaries. It strengthened national unity. Above all, the linguistic states underlined the acceptance of the principle of diversity.

(All points)

29	**A) Ans:** The facts mentioned below make the European Union a highly influential regional organisation: 1. It has its own flag, anthem, founding date and currency. 2. It has forum of a foreign and security policy in its dealings with other nations. 3. The EU is the world's biggest economy with a GDP of more than $12 trillion in 2005 slightly larger than that of the United States. 4. Its share of world trade is three times larger than that of the United States. Its economic power gives it influence over its closest neighbours as well as in Asia and Africa. 5. It role as an important bloc in international economic organisations such as the World Trade Organisation. 6. It has political and diplomatic influence. Two members of EU–Britain and France-are permanent members of UN Security Council. Some of its members are non-permanent members of UN Security Council. Its use of diplomacy, economic investments and negotiations rather than coercion have been more effective in dialogue with China on human rights and environmental degradation. 7. Its military power is the second largest in the world. Britain and France have nuclear arsenals. 8. It is the world's second most important source of space and communication technology. Thus, as supranational organisation, the EU is able to intervene in economic, political and social areas of the world. **(Any other relevant point/s)** **OR** **B)** i) Between the 1960s and the 1980s, it rapidly developed into an economic power, which is termed as "Miracle on the Han River". ii) Signaling its all-around development, South Korea became a Member of the OECD in 1996. iii) In 2017, its economy is the eleventh largest in the world and its military expenditure is the tenth largest. iv) According to the Human Development Report 2016, the HDI rank of South Korea is 18. The major factors responsible for its high human development include "successful reforms, rural development, extensive human resources development and rapid equitable economic growth." v) Other factors are export orientation, strong redistribution policies, public infrastructure, development, effective institutions and governance. vi) The South Korean brands such as Samsung, LG and Hyundai have become renowned in India. Numerous agreements between India and South Korea signify their growing commercial and cultural ties. **(Or Any other relevant point/s)**	6
30	**A)** The UN was established in 1945 immediately after the Second World War. After the Cold War, some of the changes that have Occurred are: i) The Soviet Union has collapsed. The US is the strongest power. ii) China is fast emerging as a great power, and India also is growing rapidly. iii) The economies of Asia are growing at an unprecedented rate. iv) Many new countries have joined the UN v) A whole new set of challenges confronts the world (genocide, civil war, ethnic conflict terrorism, nuclear proliferation, climate change, environmental degradation, epidemics). vi) In accordance to these changes, the UN has considered Reforms of structure and processes especially of the Security Council. After 60 years of its formation, it was decided to take steps to make UN more relevant in the changing context. • Creation of a Peace building Commission • Acceptance of the responsibility of the international community in case of failures of national governments to protect their own citizens from atrocities Establishment of a	6

Human Rights Council (operational since 19 June 2006)
- Agreements to achieve the Millennium Development Goals (MDGs)
- Condemnation of terrorism in all its forms and manifestations Creation of a Democracy Fund
- An agreement to wind up the Trusteeship Council
- In recent years UN also works on SDG's.
  (**Or Any other relevant point**)

B)
i) The UN is an imperfect body, but without it the world would International organisations are not the answer to everything, but they are important.
ii) International organisations help with matters of war and peace. They also help countries cooperate to make better living conditions for us all
iii) Countries have conflicts and differences with each other. That does not necessarily mean they must go to war to deal with their antagonisms. They can, instead, discuss contentious issues and find peaceful solutions The role of an international organisation can be important in this context.
iv) An international organisation is not a super-state with authority over its members. Once created, it can help member states resolve their problems peacefully.
v) There are issues that are so challenging that they can only be dealt with when everyone works together. Disease is an example. Some diseases can only be eradicated if everyone in the world cooperates in inoculating or vaccinating their populations. Or take global warming and its effects; international organisation can help produce information and ideas about how to cooperate.
vi) It can provide mechanisms, rules and a bureaucracy, to help members have more confidence that costs will be shared properly, that the benefits will be fairly divided.

(**Or Any other relevant point**)

GEOGRAPHY (029)
SAMPLE QUESTION PAPER
Class: XII: 2024 – 25

Time allowed: 3 Hours   Maximum marks: 70

General Instructions:

Read the following instructions carefully and follow them:

(i)   This questions paper contains 30 questions. All questions are compulsory.

(ii)   Question paper is divided into five sections A, B, C, D and E.

(iii) Section A Questions no. 1 to 17 are Multiple Choice type questions. Each question carries 1 mark.

(iv)   Section B Questions no. 18 and 19 are Source-based questions. Each question carries 3 marks.

(v)   Section C Questions no. 20 to 23 are Short Answer type questions. Each question carries 3 marks. Answer to these questions shall be written in 80 to 100 words.

(vi)   Section D Questions no. 24 to 28 are Long Answer type questions. Each question carries 5 marks. Answer to these questions shall be written in 120 to 150 words.

(vii) Section E Questions no. 29 and 30 are Map-based questions. Each question carries 5 marks.

(viii) In addition to this, NOTE that a separate question has been provided for Visually Impaired candidates in lieu of questions having visual inputs, map etc. Such questions are to be attempted by Visually Impaired candidates only.

(ix)   There is no overall choice given in the question paper. However, an internal choice has been provided in a few questions in all sections other than Section A**.**

Section A

Questions no. 1 to 17 are Multiple Choice Type Questions. (17X1)   **17**

1   The Human Poverty Index measures the shortfall in human development on the   1
    basis of which parameter/s?
    A. The adult literacy rate and the life expectancy at birth.
    B. Access to resources in terms of purchasing power.
    C. The number of small children who are underweight.
    D. The number of children enrolled in the school .

2   There are two statements marked as Assertion (A) and Reason (R). Mark your answer   1
    as per the codes provided below.
    Assertion (A): Often smaller countries have done better than larger ones and
    relatively poorer nations have been ranked higher than richer neighbours in terms of
    human development.
    Reason (R): Size of the territory and per capita income are not directly related to
    human development. Countries with higher human development are those where a
    lot of investment in the social sector has taken place.

    Options:

    A. Both (A) and (R) are true but (R) is not the correct explanation of (A).
    B. Both (A) and (R) are true and (R) is the correct explanation of (A).

C. Both (A) and (R) are incorrect.
D. (A) is correct but (R) is incorrect.

3   Which of the following statements are correct related to rural marketing centres? Choose the correct option.
    i. Rural marketing centres cater to nearby settlements.
    ii. Rural Marketing centres are quasi-urban trading centres of the most rudimentary type.
    iii. They offer manufactured goods as well as many specialized markets develop, e.g. markets for labour, housing, semi or finished products.
    iv. Personal and professional services are not well-developed. These form local collecting and distributing centres.

    Options:
    A. i, ii, iv
    B. i, iii, iv
    C. ii, iii, iv
    D. i, ii, iii

1

4   Arrange the following facts related to the history of international trade in sequence.

    i.   The Silk Route is an early example of long distance trade connecting Rome to China – along the 6,000 km route.
    ii.   After the disintegration of the Roman Empire, European commerce grew during twelfth and thirteenth century with the development of ocean going warships trade between Europe and Asia grew and the Americas were discovered.
    iii. Fifteenth century onwards, the European colonialism began and along with trade of exotic commodities, a new form of trade emerged which was called slave trade.
    iv.   During the World Wars I and II, countries imposed trade taxes and quantitative restrictions for the first time.

    Codes
    A. i, ii, iv, v
    B. iv, ii, iii, i
    C. i, ii, iii, iv
    D. iii, ii, iv, i

1

5   The act of opening up economies for trading by bringing down trade barriers like tariffs and allowing goods and services from everywhere to compete with domestic products and services is called_____.

    A. Dumping
    B. Trade liberalization
    C. Balance of trade
    D. Bilateral trade

1

6   Arrange the following states in order of their population from highest to lowest.

    1.   Bihar
    2.   Maharashtra
    3.   Uttar Pradesh
    4.   West Bengal

1

Codes:
  A. 1, 3, 2, 4
  B. 4, 3, 2, 1
  C. 3, 2, 1, 4
  D. 2, 1, 4, 3

7   There are four distinct phases of population growth identified in India over the last one   1
century. Identify the phase from the given description.

This period is referred to as the period of population explosion in India, which was caused by a rapid fall in the mortality rate but a high fertility rate of population in the country. The average annual growth rate was as high as 2.2 per cent. It is in this period that developmental activities were introduced through a centralized planning process and economy started showing up ensuring the improvement of living condition of people at large. Consequently, there was a high natural increase and higher growth rate.

  A. Phase I 1901-1921
  B. Phase II 1921-1951
  C. Phase III 1951-1981
  D. Phase IV post 1981 till present

8   The objective of protective irrigation is to_____: 1

  A. protect the crops from adverse effects of soil moisture deficiency.
  B. provide sufficient soil moisture in the cropping season to achieve high productivity.
  C. double water input per unit area of cultivated land so that multiple cropping can be done.
  D. increase the productivity of soil.

9   There are two statements marked as Assertion (A) and Reason(R). Mark your   1
answer as per the codes provided below.
Assertion (A): There has been a significant increase in agricultural output and yield, of many crops such as rice and wheat among the other crops like sugarcane, oilseeds and cotton, due to improvement in technology during the last 50 years.
Reason (R): Expansion of irrigation has played a crucial role in enhancing agricultural output in the country. It provided basis for introduction of modern agricultural technology during the last 50 years.

Options:

  A. Both (A) and (R) are true but R is not the correct explanation of (A).
  B. Both (A) and (R) are true and (R) is the correct explanation of (A).
  C. Both (A) and (R) are incorrect.
  D. (A) is correct but (R) is incorrect.

10   Identify the statement that is **NOT** true with regard to watershed management?   1

    I.   It refers to efficient management and conservation of surface and groundwater resources.
    II. Watershed management includes judicious use of all resources – Both natural and human with in a watershed.
    III. Watershed management aims at bringing about balance between natural resources on the one hand and society on the other.
    IV. The success of watershed development solely depends upon the state government.

Options:
  A. Statement I and IV
  B. Only II
  C. Only III
  D. Statement IV

11   A group of students were conducting research on water Pollution level in Delhi. Which organization will students need to visit to gather information on water quality?   1

  A. Delhi Pollution Control Committee (DPCC)
  B. Indian Council of Environmental Research (ICER)
  C. National water development Agency (NWDA)
  D. Central Pollution Control Board (CPCB)

12   Which one of the following is incorrectly matched?   1

List I (Name of the state)	List II (Coal mining Centre)
A. West Bengal	I. Raniganj
B. Tamil Nadu	2. Neyveli
C. Maharashtra	3. Korba
D. Odisha	4. Talcher

1

13   Satellite is mode of communication in themselves as well as they regulate the use of other means of communication. Choose the correct satellite system used by India.
  1. India Remote Sensing Satellite System (IRS)
  2. Indian Space Research Organization (ISRO)
  3. Indian Nation Satellite System (INSAT)
  4. India Regional Navigation Satellite System
Codes
  A. Both I and III
  B. Only I
  C. Both II and III
  D. Only IV

14   *Setubharatam Pariyoj*ana launched by the Indian government aims to achieve?   1

A. Development of State roads along coastal border areas.
B. The construction of about 1500 major bridges and 200 rail over bridges and rail under bridges.
C. Development of border roads.
D. Construction of more water ways.

15   Read the graph and answer the following questions no.15-17:   1
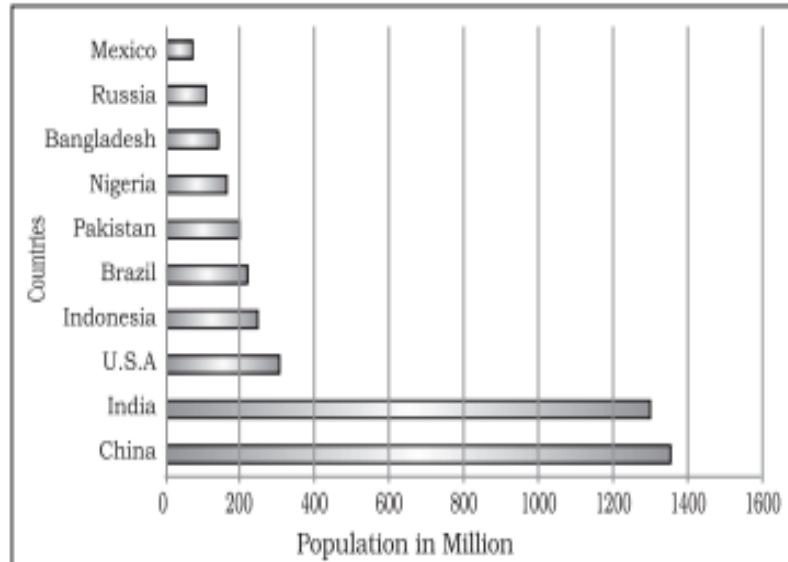
Identify the highest populous country?
A. Russia
B. India
C. Canada
D. China

15.1 **The following question is for Visually Impaired Candidates only in lieu of Q.15.**
Identify the highest populous country?
A. Russia
B. India
C. Canada
D.   China

16   Identify the African country that has very high population.   1
A. Mexico
B. Brazil
C. Pakistan
D. Nigeria

16.1 **The following question is for Visually Impaired Candidates only in lieu of Q.16.**
What does the term population distribution refer to?

A. The total number of people living in specific area.
B. The arrangement or spread of people across a given area.
C. The rate at which population increases over time.
D. The number of births per 1,000 people in the population.

17   Which continent has the highest number of the world's most populous countries?   1

       A. Africa
       B. North America
       C. Asia
       D. South America

17.1   **The following question is for Visually Impaired Candidates only in lieu of Q. 17.**
       Which continent has the highest number of the world's most populous countries?

       A. Africa
       B. North America
       C. Asia
       D. South America

Section B

Questions number 18 and 19 are Source-based Questions.   **2x3=6**

18   Read the passage carefully and answer the questions that follows: 3 x1=3

Tourism

Tourism has become the world's single largest tertiary activity in total registered jobs (250 million) and total revenue (40 per cent of the total GDP). Besides, many local persons, are employed to provide services like accommodation, meals, transport, entertainment and special shops serving the tourists. Tourism fosters the growth of infrastructure industries, retail trading, and craft industries (souvenirs). In some regions, tourism is seasonal because the vacation period is dependent on favourable weather conditions, but many regions attract visitors all the year round.

The warmer places around the Mediterranean Coast and the West Coast of India are some of the popular tourist destinations in the world. Others include winter sports regions, found mainly in mountainous areas, and various scenic landscapes and national parks, which are scattered. Historic towns also attract tourists, because of the monument, heritage sites and cultural activities.

(I) What constitutes tourism?
(II) List two renowned global tourist destinations.

(III) "Tourism has become the largest tertiary activity in the world". Comment.

19   Study the following table and answer the questions: 3 x1=3

Level of Human Development	Score in Development Index	Number of Countries
Very High	above 0.800	66
High	between 0.700 up to 0.799	53
Medium	between 0.550 up to 0.699	37
Low	below 0.549	33

Source: Human Development Report, 2020

(I) Identify the human development score for the countries classified as having Medium Human Development?

(II) What can you infer about the well-being of people living in countries with a high level of human development?

(III) Give reasons for low level of human development in 33 countries.

Section C

Questions number 20 to 23 are Short Answer Type Questions 4x3=12

20 Explain humanisation of nature with the help of a real life example. 3

OR

"The concept of Neo- determinism is compared with traffic lights on the cross road". Analyze the statement with examples.

21 Study the map of Suez Canal and answer the following questions: 1+1+1 =3
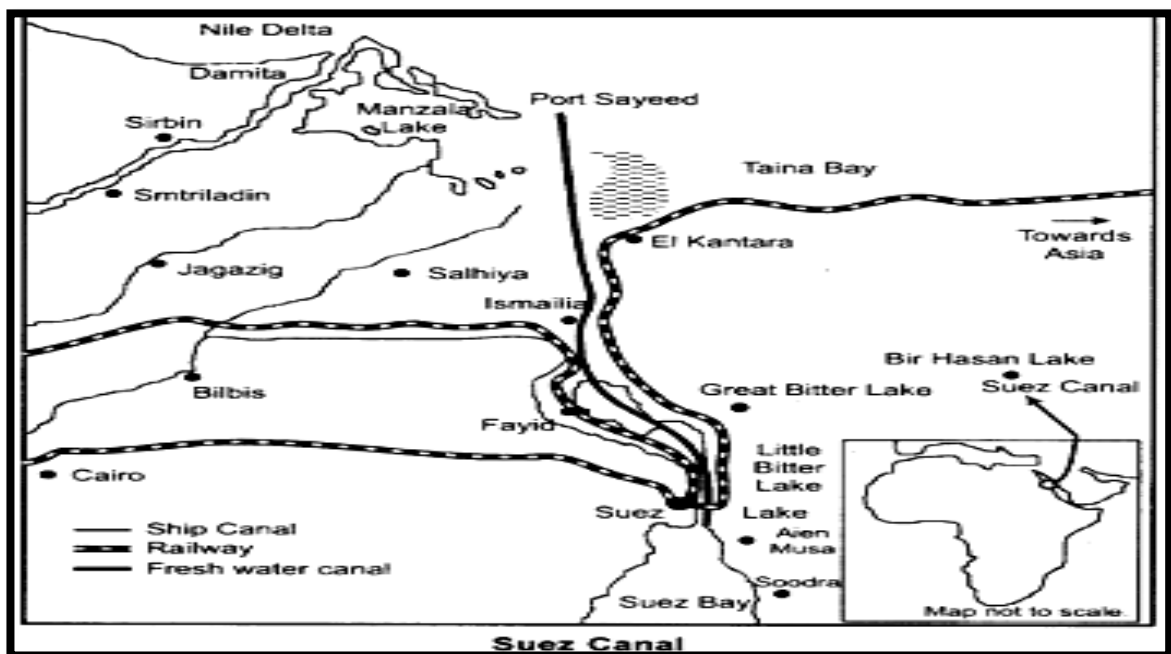
Suez Canal

(I) Name the two seas connected by the Suez Canal.

(II) Why do we consider this as Europe's gateway to the Indian Ocean?

(III) Write one characteristic of the Suez Canal.

21.1 **The following questions are for Visually Impaired Candidates only in lieu of Q.21** 1+1+1= 3

(I)   Name the two oceans connected by the Panama Canal.

(II)   Write one unique feature of the Panama Canal.

(III)   Why is this canal vital for the economies of Latin America?

22   Prepare a proposal for a smart city that integrates advanced technology to enhance   3
      urban living while prioritising sustainability, cleanliness and affordability.

23   Enumerate the challenges confronting society regarding the adolescent population.   2+1=3
      Enlist a few measures to overcome these problems.

Section D

Questions number 24 to 28 are Long Answer Type Questions- 5X5=25

24   How does food gathering as an economic activity differ between primitive and modern   3+2=5
      societies, and why is it unlikely to significantly influence the global economy today?

25   A. Assess the factors that contributed to the development of large-scale industries   5
           all over the world.

                                           OR

       B. Access to transportation and communication facilities are essential for the
           development of industries.' Justify the statement with suitable example.

26   A. Evaluate the benefits derived from Integrated Tribal development Project   5
           implemented in Bharmaur Region.

                                           OR

       B. 'Hill Area Development Programmes were initiated for the specified areas
           keeping in view their topographical, ecological, social and economic conditions'.
           Justify the statement.

27   A. The composition of commodities in India's international trade has been   5
           undergoing a change over the years. Substantiate the statement with suitable
           arguments.

                                           OR

       B.'Air transport plays an important role in the international trade'. Justify the
           statement with suitable arguments.

28   A. 'Environmental pollution by solid wastes has now got significance due to   5
           enormous growth in the quantity of waste'".

                                           OR

       B. Give reasons for the unsustainable increase in solid waste and discuss two
           strategies to control waste generation at the source in urban areas.

Section E

Question numbers 29 & 30 are Map based questions having 5 sub-parts each.   **2X5=10**

29 On the given political map of the World, seven geographical features have been   5
    marked as A, B, C, D, E, F and G. Identify any five with the help of the following
    information and write their correct names on the lines drawn near each feature.

    A. A major seaport.
    B. An international airport.
    C. An important Seaway.
    D. An area of subsistence gathering in South America.
    E. An important seaport of Asia.
    F. An area of Nomadic Herding.
    G. Region of extensive commercial grain agriculture.
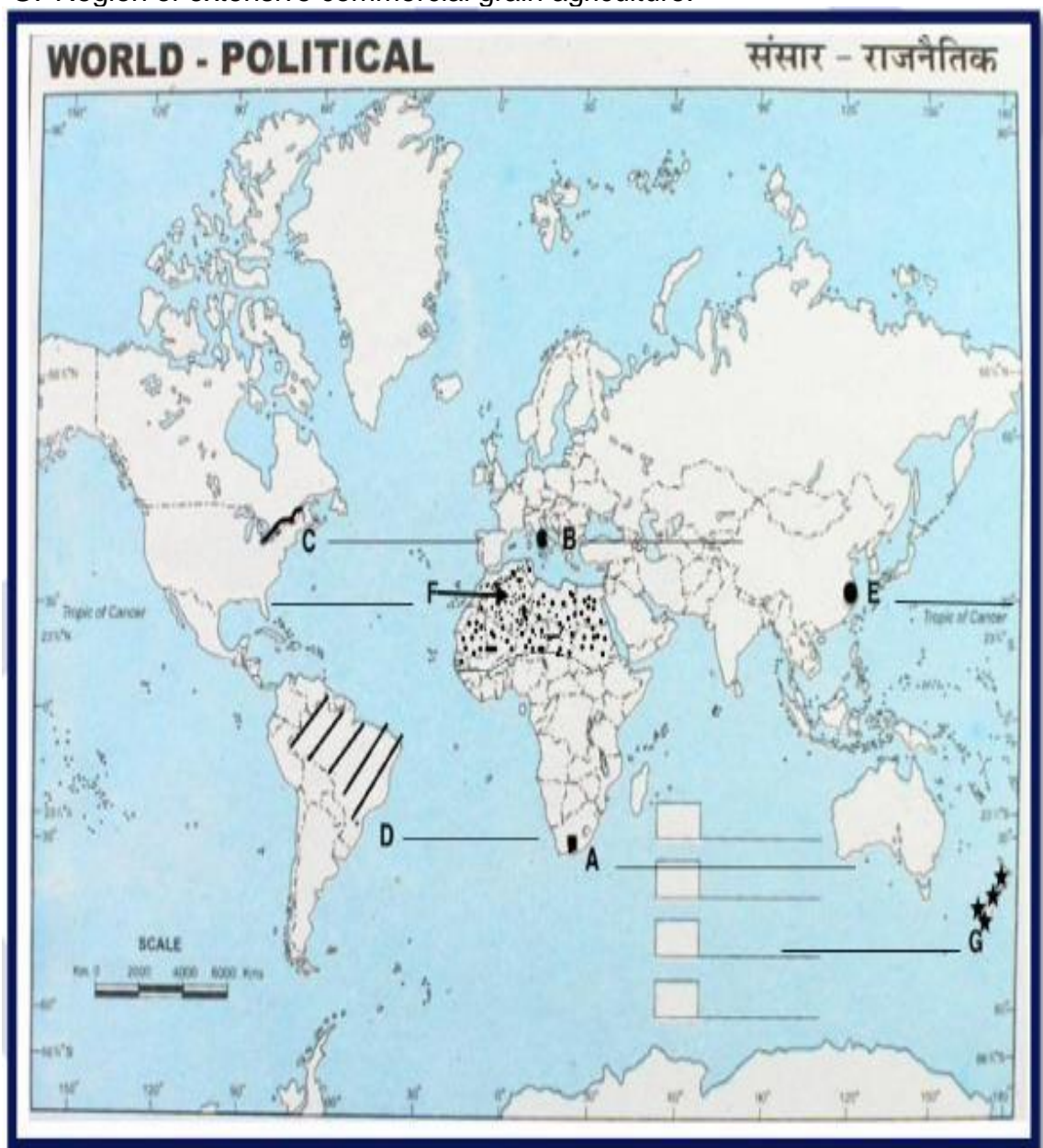
The following questions are for Visually Impaired Candidates only in lieu of Question No.29.

Answer any five questions out of the following:

29 A. Name a major seaport situated at the southernmost tip of Africa.

29 B. Name an important international airport of Italy.

29 C. Which river in North America connects the Great Lakes to the Atlantic Ocean?

29 D. Name an area of subsistence gathering in South America.

29 E. Name an important sea port of China.

29 F. Mention an area of nomadic herding in North Africa.

29 G. Name the area of extensive commercial grain agriculture in New Zealand.

30   Locate and label any five of the following geographical features on the Political   5
Outline map of India with appropriate symbols:
A. An important coal mine in Orisha.
B. An important seaport in Karnataka.
C. Jharia – Coal mines.
D. An oil refinery in Uttar Pradesh.
E. The state with lowest population density.
F. The state leading in the production of Tea.
G. An international airport in Punjab.

The following questions are for visually impaired students in lieu of Question No.30. Attempt any five.

30.A   Name an important coal mine in Orisha.
30.B   Name an important seaport in Karnataka.
30.C   Name one important coal mine of Maharashtra
30.D   Name one oil refinery of Uttar Pradesh.
30.E Name the state with lowest population density.
30.F Name one leading tea producing state of India.
30.G Name the international airport of Punjab.

Geography (029)
Marking Scheme
Class: XII-2024 – 25

Q.N	Section A	Marks
	There are 17 questions in this section.	
1	Ans. C. -The number of small children who are underweight	1
2	Ans: B Both (A) and (R) are true and (R) is the correct explanation of (A).	1
3	Ans: A i, ii, iv	1
4	Ans: C i, ii, iii, iv	1
5	Ans: B Trade liberalization	1
6	Ans: C 3, 2, 1, 4	1
7	Ans: C Phase III 1951-1981	1
8	Ans: A To protect the crops from adverse effects of soil moisture deficiency.	1
9	Ans: B Both (A) and I are true and I is the correct explanation of (A).	1
10	Ans: D Statement IV	1
11	Ans: D Central Pollution Control Board (CPCB)	1
12	Ans: C C Maharashtra | 3 Korba	1
13	Ans: A Both I and III	1
14	Ans: B The construction of about 1500 major bridges and 200 rail over bridges and rail under bridges.	1
15	Ans: D China	1
16	Ans: D- Nigeria For Visually Challenged students Ans: B - The arrangement or spread of people across a given area.	1
17	Ans: C Asia	1
	Section-B	
	Question 18 & 19 are Source based questions. (2X3=6)	
18	(I) Travel undertaken for purposes of recreation rather than business. (II) The Mediterranean Coast and the West Coast of India. (III) Tourism has become the world's single largest tertiary activity in total registered jobs (250 million) and total revenue (40 per cent of the total GDP). Besides, many local people are employed to provide services like accommodation, meals, transport, entertainment and special shops serving the tourists. Tourism fosters the growth of infrastructure industries, retail trading, and craft industries (souvenirs).	1+1+1 =3

19	(I) Between 0.700 up to 0.699	1+1+1 =3
	(II) High Literacy rate, Low Birth rate and death Rate, High life expectancy	
	(III) Countries with low levels of human development tend to spend more on defense rather than social sectors. These countries tend to be located in areas of political turmoil and social instability in the form of civil war, famine or a high incidence of diseases. They have not been able to initiate accelerated economic development.	

SECTION C

Question No.20-23 are Short Answer type questions
(4X3=12)

20	Humanization of nature. i. With the passage of time people begin to understand their environment and the forces of nature. With social and cultural development, humans develop better and more efficient technology. They move from a state of necessity to a state of freedom. ii. They create possibilities with the resources obtained from the environment. The human activities create cultural landscape. iii. The imprints of human activities are created everywhere; health resorts on highlands, huge urban sprawls, fields, orchards and pastures in plains and rolling hills, ports on the coasts, oceanic routes on the oceanic surface and satellites in the space. The earlier scholars termed this as possibilism. iv. Nature provides opportunities and human being make use of these and slowly nature gets humanized and starts bearing the imprints of human endeavour. **OR** Neo determinism i. Traffic is regulated by lights on the cross-roads. Red light means 'stop', amber light provides a gap between red and green lights 'to get set' and green light means 'go'. ii. The concept shows that neither is there a situation of absolute necessity (environmental determinism) nor is there a condition of absolute freedom (possibilism). iii. It means that human beings can conquer nature by obeying it. They have to respond to the red signals and can proceed in their pursuits of development when nature permits the modifications. iv. It means that possibilities can be created within the limits which do not damage the environment and there is no free run without accidents. The free run which the developed economies attempted to take has already resulted in the greenhouse effect, ozone layer depletion, global warming, receding glaciers and degrading lands. Any three points	3
21	(I) Mediterranean Sea and Red (II) This sea-route reduces direct distance between Liverpool and Colombo compared to the Cape of Good Hope route. (III) It is a sea-level canal without locks which is about 160 km and 11 to 15 m deep. • About 100 ships travel daily and each ship takes 10-12 hours to cross this canal. The tolls are so heavy. • A railway follows the canal to Suez, and from Ismailia there is a branch line to Cairo. • A navigable fresh-water canal from the Nile also joins the Suez Canal in Ismailia to supply fresh-water to Port Said and Suez. Any one point.	1+1+1 =3

	The following questions are for Visually Impaired Candidates Only In lieu of Question No. 21.	
	Ans (I) The Panama Canal connects the Atlantic Ocean in the east to the Pacific Ocean in the west.	
	Ans (II) It has a six- lock system and ships cross the different levels (26 m up and down) through these locks before entering the Gulf of Panama.	
	Ans (III) It shortens the distance between New York and San Francisco by 13,000 km by sea. The distance between Western Europe and the West-coast of U.S.A.; and North-eastern and Central U.S.A. and East and South-east Asia is shortened.	
22	Ans: One of the features of Smart Cities is: i. To apply smart solutions to infrastructure and services. ii. Making city less vulnerable to disasters, using fewer resources and providing cheaper services. iii. The focus is on sustainable and inclusive development. Any other relevant point.	3
23	Ans: The share of adolescents (ages 10 -19) is about 20.9 percent of the population. The adolescent population though regarded as the youthful population having high potential, is quite vulnerable if not guided properly. i. There are many challenges for the society as far as adolescents are concerned such as, marriage at a young age, illiteracy (especially in females), school dropouts, low intake of nutrients, high rate of mortality of adolescent mothers, high rates of HIV/AIDS infections, physical or mental retardedness, drug abuse, alcoholism, juvenile delinquency, and committing crimes. ii. The government of India has undertaken certain policies to impart proper education to the adolescents so their talents are better channelized and properly utilised. iii. The National Youth Policy looks into the overall development of our large youth. It stresses on an all-round improvement of the youth and adolescents enabling them to shoulder responsibility towards constructive development of the country.	2+1
	Section D	

Question numbers 24 to 28 are Long Answer based questions.(5X5=25)

| 24 | Ans: <u>Food gathering as an economic activity:</u>
 Gathering is practised in regions with harsh climatic conditions. It often involves primitive societies, who extract, both plants and animals to   satisfy their needs for food, shelter and clothing.
 i. This type of activity requires a small amount of capital investment and operates at very low level of technology.
 ii. The yield per person is very low and little or no surplus is produced.
 iii. In modern times some gathering is market- oriented and has become commercial.
 iv. Gatherers collect valuable plants such as leaves, barks of trees and medicinal plants and after simple processing sell the products in the market.
 v. They use various parts of the plants, for example, the bark is used for quinine, tanin extract and cork— leaves supply materials for beverages, drugs, cosmetics, fibres, | 3+2=5 |

		thatch and fabrics; nuts for food and oils and tree trunk yield rubber, balata, gums and resins. Any three points of comparison. Why food gathering has little chance of becoming important at the global level? i. Gathering has little chance of becoming important at the global level. Products of such an activity cannot compete in the world market. ii. Moreover, synthetic products often of better quality and at lower prices, have replaced many items supplied by the gatherers in tropical forests.	
	25	Ans A: The factors contributing to the decline of traditional large-scale industries: i. Technological advancement: Automation and improved efficiency have transformed the industrial landscape, making manual labor less necessary. This has particularly impacted labor-intensive sectors like textiles, where automation has replaced many traditional roles. ii. Globalization**:** The opening of markets and increased competition from foreign companies, often with lower production costs, have posed significant challenges to domestic industries. The steel industry's struggle against cheaper imports is a prominent example of this phenomenon. iii. Changing consumer preferences**:** Consumer demand for more innovative and readily available products has shifted away from traditional goods. This shift can be seen in the declining demand for handmade textiles, which are often perceived as costlier and less accessible compared to machine-made alternatives. iv. Environmental regulations: Increasing environmental awareness has necessitated cleaner production methods, adding to production costs for traditional industries. Compliance with stringent environmental standards has further impacted their competitiveness. v. Infrastructural bottlenecks: Inadequate infrastructure, particularly in terms of transportation, power, and water supply, has hampered the growth of traditional industries. This has resulted in disruptions to production processes, as seen in instances of power cuts affecting manufacturing units. vi. Demographic changes: Urbanization and rural-to-urban migration have led to labor shortages in Rural areas where many traditional industries are located. Higher urban wages and changing lifestyles have made it challenging for these industries to sustain their operations. Any other relevant point Ans B: Access to transportation and communication facilities are essential for the development of industries: i. Speedy and efficient transport facilities to carry raw materials to the factory and to move finished goods to the market are essential for the development of industries. ii. The cost of transport plays an important role in the location of industrial units. iii. Western Europe and eastern North America have a highly developed transport system which has always induced the concentration of industries in these areas. iv. Modern industry is inseparably tied to transportation systems. v. Improvements in transportation led to integrated economic development and regional specialization of manufacturing.	5

26	Ans A: The benefits derived from Integrated Tribal development Project-implemented in Bharmaur Region.	5

Ans A: The benefits derived from Integrated Tribal development Project-implemented in Bharmaur Region.

i. The Fifth Five Year Plan, the tribal sub-plan was introduced in 1974 and Bharmaur was designated as one of the five Integrated Tribal Development Projects (ITDP) in Himachal Pradesh.
ii. This area development plan was aimed at improving the quality of life of the Gaddis.
iii. This plan laid the highest priority on development of transport and communications, agriculture and allied activities, and social and community services.
iv. The most significant contribution of tribal sub-plan in Bharmaur region is the development of infrastructure in terms of schools, healthcare facilities, potable water, roads, communications and electricity.
v. The social benefits derived from ITDP include tremendous increase in literacy rate, improvement in sex ratio and decline in child marriage.
vi. The female literacy rate in the region increased from 1.88 per cent in 1971 to 65 per cent in 2011.

vii. Traditionally, the Gaddis had subsistence agricultural-cum-pastoral economy having emphasis on foodgrains and livestock production. But during the last three decades of twentieth century, the cultivation of pulses and other cash crops has increased in Bharmaur region.

Any five points

OR

Ans B:

i. Hill Area Development programmes were initiated during Fifth Five Year Plan.
ii. These programmes covered 15 districts comprising all the hilly districts of Uttar Pradesh (present Uttarakhand), Mikir Hills and North Kachar Hills of Assam Drajeeling district of West Bengal and Nilgiri dictrict of Tamil Nadu.
iii. The National Committee on the Development of Backward Area in 1981 recommended that all the hill areas in the country having height above 600 m and not covered under the tribal sub-plan be treated as backward hill areas.
iv. The detailed plans for the development of hill areas were drawn keeping in view their topographical, ecological, social and economic conditions.
v. These programmes aimed at harnessing the indigenous resources of the hill areas through development of horticulture, plantation agriculture, animal husbandry, poultry, forestry and small scale and village industry.

Any other relevant point

27	Ans A: The composition of commodities in India's international trade has been undergoing a change over the years:	5

Ans A: The composition of commodities in India's international trade has been undergoing a change over the years:

i. The share of agriculture and allied products has declined, whereas, shares of petroleum and crude products and other commodities have increased.
ii. The shares of ore minerals and manufactured goods have largely remained constant over the years from 2009-10 to 2010-11and 2015-16 to 2016-17.
iii. The decline in traditional items is largely due to the tough international competition. Amongst the agricultural products, there is a decline in the export of traditional items, such as coffee, cashew, etc., though an increase has been registered in floricultural products, fresh fruits, marine products and sugar, etc.

	iv. Manufacturing sector alone accounted for 73.6 per cent of India's total value of export in 2016-17. Engineering goods have shown a significant growth in the export. v. After 1970s, foodgrain import was discontinued due to the success of Green revolution but the energy crisis of 1973 pushed the prices of petroleum, and import budget was also pushed up. vi. Foodgrain import was replaced by fertilizers and petroleum. Machine and equipment, special steel, edible oil and chemicals largely make the import basket. Any five points **OR** Ans B: Air transport is the fastest means of transportation, but it is very costly. Being fast, it is preferred by passengers for long- distance travel. i. Valuable cargo can be moved rapidly on a world-wide scale. ii. It is often the only means to reach inaccessible areas. iii. Air transport has brought about a connectivity revolution in the world. The frictions created by mountainous snow fields or inhospitable desert terrains have been overcome. iv. The accessibility has increased. The airplane brings varied articles to the Eskimos in Northern Canada unhindered by the frozen ground. In the Himalayan region, the routes are often obstructed due to landslides, avalanches or heavy snow fall. At such times, air travel is the only alternative to reach a place. v. At present no place in the world is more than 35 hours away. This startling fact has been made possible due to people who build and fly airplanes. vi. Travel by air can now be measured by hours and minutes instead of years and months. vii. Frequent air services are available to many parts of the world. Any five points	
28	Ans: Environmental pollution by solid wastes has now got significance due to enormous growth in the quantity of waste: i. Urban areas are generally marked by overcrowding, congestion, inadequate facilities to support the fast growing population and consequent poor sanitary conditions and foul air. ii. Solid waste refers to a variety of old and used articles, for example stained small pieces of metals, broken glassware, plastic containers, polythene bags, ash, floppies, CDs, etc., dumped at different places. iii. The discarded materials are also termed as refuse, garbage and rubbish, etc., and are disposed of from two sources: (i) household or domestic establishments, and (ii) industrial or commercial establishments. iv. The household wastes are disposed of either on public lands or on private contractors' sites whereas the solid wastes of industrial units are collected and disposed of through public (municipal) facilities at low lying public grounds (landfill areas). v. The huge turnout of ashes and debris from industries, thermal power houses and building constructions or demolitions have posed problems of serious consequences. vi. Solid waste is threat to human health and cause various diseases. It creates foul smell and it harbours flies and rodents that can cause typhoid, diarrhoea, malaria and other diseases. vii. Solid waste can create inconvenience rapidly if they are not properly handled wind, water and rain can spread waste and cause a discomfort to people. viii. Industrial solid waste can cause water pollution by dumping it into water bodies. Drains carrying untreated sewage also result into various health problems.	5

	Any four points	
	Strategies to control waste generation at the source in urban areas:	
	i. Waste Minimization and Recycling Campaigns: Education and awareness programs: Implement educational campaigns to raise awareness among residents about the importance of waste minimization and recycling. This can include workshops, seminars, and outreach activities conducted by local authorities, NGOs, and community groups. ii. Incentive schemes: Introduce incentives for households and businesses that actively participate in waste minimization and recycling efforts. This could include discounts on utility bills, tax rebates, or rewards for recycling initiatives. iii. Product design and packaging regulations: Enact policies that encourage manufacturers to adopt eco-friendly packaging and product design practices. This can involve setting standards for recyclability, biodegradability, and the use of sustainable materials. iv. Extended producer responsibility (EPR): Implement EPR schemes to hold producers accountable for the entire lifecycle of their products, including waste management. This encourages manufacturers to design products with minimal environmental impact and to take responsibility for recycling or disposing of their products at the end of their life. Any Two points	
	SECTION E	
Question numbers 29 & 30 are Map based questions having 5 sub-parts each. (2X5=10)

29	Map World
	On the given political map of the world, the following seven features 5 are shown. Identify any five of these features and write their correct names on the lines marked near each feature.
	
	A. Cape town
	B. Rome
	C. St. Lawrence sea way
	D. Amazon
	E. Shanghai
	F. Tropical Africa/ North Africa
	G. Canterbury Grasslands/Plains
	
	The following questions are for Visually Impaired Candidates only in lieu of Question No.29.
	   29 A. Cape town
	   29 B. Rome
	   29 C. St. Lawrence sea way
	   29 D. Amazon
	   29 E. Shanghai
	   29 F. Tropical Africa/ North Africa
	   29 G. Canterbury Grasslands/Plains
		2X5=10

30	**Locate and label any five of the following geographical features on the Political Outline map of India with appropriate symbols:** A. Mayurbhanj B. Mangalore C. Jharia D. Mathura E. Arunachal Pradesh F. Assam/West Bengal/Tamil Nadu G. Amritsar **The following questions are for visually impaired students in lieu of Question No.30. Attempt any five.** 30.A Mayurbhanj 30.B Mangalore 30.C Ratnagiri 30.D Mathura 30.E Arunachal Pradesh 30.F Assam/West Bengal/Tamil Nadu 30.G Amritsar	5

निर्धारित समय: 03 घंटे   **अधिकतम अंक : 80 अंक**

सामान्य निर्देश :-
- निम्नलिखित निर्देशों को बहुत सावधानी से पढ़िए और उनका पालन कीजिए :-
- यह प्रश्न-पत्र तीन खण्डों में विभाजित है।
- खंड - क में अपठित बोध पर आधारित प्रश्न पूछे गए हैं। सभी प्रश्नों के उत्तर देना अनिवार्य है।
- खंड - ख में पाठ्यपुस्तक अभिव्यक्ति और माध्यम से प्रश्न पूछे गए हैं। प्रश्नों में आंतरिक विकल्प दिए गए हैं।
- खंड - ग में पाठ्यपुस्तक आरोह तथा वितान से प्रश्न पूछे गए हैं। प्रश्नों में आंतरिक विकल्प दिए गए हैं।
- तीनों खंडों के प्रश्नों के उत्तर देना अनिवार्य है ।
- यथासंभव तीनों खंडों के प्रश्नों के उत्तर क्रमशः लिखिए।

प्रश्न संख्या	खंड - क (अपठित बोध)	अंक (18)
1.	निम्नलिखित गद्यांश पर आधारित पूछे गए प्रश्नों के उत्तर दीजिए :-	(10)

अच्छी बात करने वाला सभी का मान - सम्मान हासिल करता है, जबकि अनावश्यक रूप से तिक्त बात करने वाला अपने तमाम गुणों के बावजूद समाज में समुचित सम्मान नहीं प्राप्त कर पाता। बात व्यक्तिगत संबंधों की करें या राष्ट्रीय और अंतरराष्ट्रीय संबंधों की, हर जगह बातों की जादूगरी का बोलबाला है। बातों ने बड़े से बड़े युद्ध को रोका है तो बड़ा से बड़ा युद्ध करवाया भी है।

बातों की महत्ता इससे साबित होती है कि वह सकारात्मक भाव से कही जा

रही हैं या नकारात्मक भाव से। बातें किसी के दिल से निकली हों, वे राग या विराग होती हैं। इसका असर बोलने और सुनने वाले दोनों पर होता है। कबीर कहते हैं ऐसी वाणी बोलिए मन का आपा खोए, औरन को शीतल करे, आपहूं शीतल होए।'

किसी व्यक्ति की सफलता इन्हीं राहों से होकर गुज़रती है। व्यक्ति की बातें उसके व्यक्तित्व का आइना होती हैं। पहले धैर्य के साथ सुनना, समझना, मनन करना, फिर बोलना, यह कला जिस व्यक्ति में होती है वह जीवन की हर बाजी को जीतने की क्षमता रखता है। कोई नौकरीपेशा हो, व्यापारी हो, कलाकार हो या अन्य कार्य करता हो, सभी की सफलता और स्थायित्व के लिए वाकपटुता आवश्यक है। बातों के संदर्भ में एक आवश्यक बात यह भी है कि व्यक्ति की कथनी और करनी में सामंजस्य आवश्यक है। 'कहना कुछ, करना कुछ' जैसी चीज़ें पूरे समाज को चोटिल करती हैं। आजीवन वास्तविक साधुत्व को जीते राष्ट्रपिता गांधी के विवेकपूर्ण और ओजस्वी वक्तृत्व क्षमता के आगे शक्तिशाली फिरंगी और तमाम लोग नतमस्तक हो जाते थे।

(साभार - संगीता सहाय – जनसत्ता – 23 अप्रैल, 2024)

(क)	बात का महत्त्व किसपर आधारित होता है ?
	
	   i. माहौल पर
	  ii. सकारात्मक या नकारात्मक होने पर
	 iii. संवेदनशीलता पर
	 iv. बोलने - सुनने वालों पर
		1

(ख)	बापू के आचरण में हमें क्या नहीं मिलेगा ?
	
	   i. कथनी - करनी में समानता
	  ii. साधुत्व
	 iii. जीतने की इच्छा
	 iv. वाकपटुता
		1

(ग)	निम्नलिखित कथनों पर विचार कीजिए -
	
	 कथन (I) : बात में सकारात्मक - नकारात्मक ऊर्जा होती है।
	
	 कथन (II) : बात सम्मान - अपमान का आधार हो सकती है।
	
	 कथन (III) : विवाद का समाधान बात पर आधारित होता है।
	
	 कथन (IV) : तिक्त बात करने वाले गुणी होते हैं।
	
	 गद्यांश के अनुसार कौन - सा/ से कथन सही हैं ?
	
	     i. केवल कथन (I) और (II) सही हैं।
	
	     ii. केवल कथन (II) सही है।
	
	     iii. केवल कथन (I), (II) और (III) सही हैं।
	
	     iv. केवल कथन (III) और (IV) सही हैं।
		1

(घ)	व्यक्ति की सफलता का मार्ग क्या है ?	1
(ङ)	युद्ध करवाने और रोकने की जादूगरी का आधार बातें कैसे हो सकती हैं ?	2
(च)	कबीर के दोहे में वाणी अर्थात बातों की शीतलता से क्या आशय है ?	2
(छ)	कथनी और करनी का भेद समाज को कैसे चोट पहुँचाता है ?	2
2.	दिए गए पद्यांश पर आधारित पूछे गए प्रश्नों के उत्तर दीजिए :-	**(08)**
	एक बार मुझे आँकड़ों की उल्टियाँ होने लगीं गिनते गिनते जब संख्या करोड़ों को पार करने लगी मैं बेहोश हो गया होश आया तो मैं अस्पताल में था खून चढ़ाया जा रहा था ऑक्सीजन दी जा रही थी कि मैं चिल्लाया डाक्टर मुझे बुरी तरह हँसी आ रही यह हँसानेवाली गैस है शायद	

प्राण बचानेवाली नहीं

तुम मुझे हँसने पर मजबूर नहीं कर सकते

इस देश में हर एक को अफ़सोस के साथ जीने का

पैदाइशी हक़ है वरना

कोई माने नहीं रखते हमारी आज़ादी और प्रजातंत्र

बोलिए नहीं - नर्स ने कहा - बेहद कमज़ोर हैं आप

बड़ी मुश्किल से क़ाबू में आया है रक्तचाप

डाक्टर ने समझाया - आँकड़ों का वाइरस

बुरी तरह फैल रहा आजकल

सीधे दिमाग़ पर असर करता

भाग्यवान हैं आप कि बच गए

कुछ भी हो सकता था आपको –

<div align="right">(कवि - कुंवर नारायण)</div>

(क)	कवि के अनुसार आँकड़ों से क्या किया जा सकता है ? निम्नलिखित कथनों पर विचार कीजिए - **कथन (I)** : आँकड़ों से सच छिपाया जा सकता है। **कथन (II)** : आँकड़ों से आज़ादी में बाधा उत्पन्न की जा सकती है। **कथन (III)** : आँकड़ों से अफ़सोस उत्पन्न होता है। **कथन (IV)** : आँकड़ों से हँसाया जा सकता है। **निम्नलिखित विकल्पों पर विचार कीजिए तथा सही विकल्प चुनकर लिखिए।** विकल्प:- i. केवल कथन (I) सही है। ii. केवल कथन (III) सही है। iii. केवल कथन (II) और (III) सही हैं। iv. केवल कथन (I) और (IV) सही हैं।	1

(ख)	कवि की हँसी का संभावित कारण था -	1
	i. खून तथा ऑक्सीजन चढ़ाया जाना ii. हँसाने वाली गैस iii. गलत और झूठे आँकड़े iv. आँकड़ों की उल्टियाँ	

(ग)	कॉलम 1 को कॉलम 2 से सुमेलित कीजिए और सही विकल्प चुनकर लिखिए।	1

	कॉलम 1		कॉलम 2
I	आज़ादी और प्रजातंत्र	(1)	गुमराह रखने का हथियार
II	आँकड़ों का वाइरस	(2)	यथार्थ में रहना
III	अफ़सोस के साथ जीना	(3)	सच जानने का अधिकार

    i.   I-(2), II-(1), III-(3)

    ii.   I-(1), II-(3), III-(2)

    iii.   I-(1), II-(2), III-(3)

    iv.   I-(3), II-(1), III-(2)

(घ)	"आंकड़ों की उल्टियाँ" - से कवि का क्या तात्पर्य है ?	1
(ङ)	आँकड़ों का वाइरस सीधे दिमाग़ पर कैसे असर करता है ?	2
(च)	डॉक्टर के अनुसार कवि के साथ कुछ भी हो सकने से क्या तात्पर्य है ?	2

प्रश्न संख्या	खंड – ख (अभिव्यक्ति और माध्यम पुस्तक पर आधारित प्रश्न)	अंक (22)
3.	निम्नलिखित दिए गए विषयों में से किसी **एक** विषय पर लगभग 120 शब्दों में रचनात्मक लेख लिखिए :- • विद्यालय का वह खास दिन • बारिश में बिन छतरी • हवाई जहाज के बिना दुनिया	01x06=06
4.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **चार** प्रश्नों के लगभग 40 शब्दों में उत्तर दीजिए :-	04x02 = 08

(क)	कहानी और नाटक किन बिंदुओं पर समान होते हैं ?	2
(ख)	अप्रत्याशित विषयों पर लेखन से क्या अभिप्राय है ?	2
(ग)	रेडियो संचार का कैसा माध्यम है ? इसकी कोई दो सीमाएँ लिखें।	2
(घ)	फ्रीलांसर पत्रकार कौन होता है ?	2
(ङ)	नए और अप्रत्याशित विषयों पर लेखन के कोई दो लाभ बताएँ।	2
5.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 80 शब्दों में उत्तर दीजिए :-	**02x04 = 08**
(क)	प्रिंट या मुद्रित माध्यम से आप क्या समझते हैं ? इसकी किन्हीं तीन विशेषताओं को रेखांकित कीजिए।	4
(ख)	उलटा पिरामिड शैली किस प्रकार के लेखन की बुनयादी शैली होती है ? इसके मुख्य तीन भागों को स्पष्ट करें।	4
(ग)	खेल पत्रकारिता के महत्त्व को रेखांकित करते हुए बताएँ कि खेल पत्रकार में क्या विशेषताएँ होनी आवश्यक हैं ?	4

प्रश्न संख्या	खंड - ग (पाठ्यपुस्तक आरोह तथा वितान पर आधारित प्रश्न)	अंक (40)
6.	निम्नलिखित काव्यांश पर आधारित पूछे गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए :-	**05x01=05**
	फिर-फिर बार-बार गर्जन वर्षण है मूसलधार, हृदय थाम लेता संसार, सुन-सुन घोर वज्र - हुंकार। अशनि - पात से शापित उन्नत शत - शत वीर, क्षत - विक्षत हत अचल - शरीर, गगन-स्पर्शी स्पर्द्धा धीर। हँसते हैं छोटे पौधे लघुभार -	

	शस्य अपार, हिल - हिल खिल - खिल, हाथ हिलाते, तुझे बुलाते, विप्लव - रव से छोटे ही हैं शोभा पाते।	

(क)	क्रांति का लाभकारी वर्ग होता है - ?
	
	    i. पूँजीपति
	   ii. छोटे पौधे
	  iii. बड़े पेड़
	  iv. शोषित वर्ग
		1

(ख)	'गगन - स्पर्शी स्पर्धा' - पंक्ति के अनुसार दिए गए कथनों पर विचार करते हुए **सही कथन** को चयनित कर लिखिए।
	
	    i. आसमान को छूने की कोशिश
	   ii. बादलों को छूने की चाह
	  iii. अत्यधिक महत्वाकांक्षी होना
	  iv. चुनौतियों का सामना करना
		1

(ग)	रिक्त स्थान की पूर्ति कीजिए - "क्रांति के _____ के जैसे वज्र गर्जना"
	
	    i. हथियारों
	   ii. बादलों
	  iii. वीरों
	  iv. मूसलधार
		1

(घ)	निम्नलिखित कथन और कारण को ध्यानपूर्वक पढ़िए और सही विकल्प चुनकर लिखिए।
	
	कथन (A) : क्रांति से शोषकों के शोषण का अंत संभव है।
	
	कारण (R) : क्रांति शोषितों के अधिकार सुनिश्चित करवा पाती है।
	
	    i. कथन (A) सही है, कारण (R) गलत है।
	
	   ii. कथन (A) सही नहीं है, कारण (R) सही है।
	
	  iii. कथन (A) तथा कारण (R) दोनों सही हैं, किंतु कारण (R) उसकी
		1

	सही व्याख्या नहीं करता।	
	iv. कथन (A) सही है तथा कारण (R) दोनों सही हैं, कारण (R) कथन (A) की सही व्याख्या करता है।	
(ङ)	तेज बरसात या क्रांति से कौन धराशायी हो जाते हैं ? i. गरीब और अमीर लोग ii. बड़े वृक्ष और छोटे पौधे iii. बड़े वृक्ष और पूँजीपति iv. बड़े वृक्ष और सर्वहारा	1
7.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 60 शब्दों में उत्तर दीजिए :-	**02x03 = 06**
(क)	दिन ढलने के बाद लौट रहे राही के कदम शिथिल क्यों हो जाते हैं ? पाठ 'एक गीत' के आधार पर उत्तर दीजिए|	3
(ख)	पाठ कवितावली के आधार पर स्पष्ट करें कि क्या तुलसी युग की समस्याएँ आज भी विद्यमान हैं ?	3
(ग)	'छोटा मेरा खेत' कविता में - कवि कागज़ को खेत का ही रूप क्यों मानता है ?	3
8.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 40 शब्दों में उत्तर दीजिए :-	**02x02 = 04**
(क)	कविता 'बात सीधी थी पर' - में किसी बात को पेचीदा कैसे किया जाता है?	2
(ख)	'कैमरे में बंद अपाहिज' कविता - आज के मिडिया पर प्रासंगिक व्यंग्य है, कैसे?	2
(ग)	रुबाइयाँ पाठ में - "आँगन में ठुनक रहा है ज़िदयाया है, बालक तो हई चाँद पै ललचाया है" - में व्यक्त बालपन को रेखांकित करें।	2
9.	निम्नलिखित गद्यांश पर आधारित पूछे गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए :-	**05x01=05**
	मैं सोचता हूँ कि पुराने की यह अधिकार - लिप्सा क्यों नहीं समय रहते सावधान हो जाती ? जरा और मृत्यु, ये दोनों ही जगत के अतिपरिचित और	

	अतिप्रामाणिक सत्य हैं। तुलसीदास ने अफ़सोस के साथ इनकी सच्चाई पर मुहर लगाई थी - 'धरा को प्रमान यही तुलसी जो फरा सो झरा, जो बरा सो बुताना !' मैं शिरीष के फूलों को देखकर कहता हूँ कि क्यों नहीं फलते ही समझ लेते बाबा कि झड़ना निश्चित है ! सुनता कौन है ? महाकालदेवता सपासप कोड़े चला रहे हैं, जीर्ण और दुर्बल झड़ रहे हैं, जिनमें प्राणकण थोड़ा भी उर्ध्वमुखी है, वे टिक जाते हैं। दुरंत प्राणधारा और सर्वव्यापक कालाग्नि का संघर्ष निरंतर चल रहा है। मूर्ख समझते हैं कि जहाँ बने हैं, वहीं देर तक बने रहें तो कालदेवता की आँख बचा जाएँगे। भोले हैं वे। हिलते - डुलते रहो, स्थान बदलते रहो, आगे की ओर मुँह किए रहो तो कोड़े की मार से बच भी सकते हो। जमे कि मरे।	
(क)	गद्यांश के अनुसार मूर्ख क्या समझते हैं? i. जहाँ हैं, वहीं पर बने रहेंगे। ii. प्राण और कालाग्नि में संघर्ष निश्चित है। iii. कि वे बहुत भोले - भाले हैं। iv. बदलाव आवश्यक है।	1
(ख)	पुराने फूल - पत्तों को यह क्यों समझना आवश्यक है कि - "झड़ना निश्चित है" ? i. क्योंकि तुलसीदास ने इसे ही सत्य माना है ii. महाकालदेवता के कोड़े चलने के कारण iii. जन्म और मृत्यु जगत का प्रामाणिक सत्य है iv. जन्म और मृत्यु के आपसी संघर्ष के कारण	1
(ग)	निम्नलिखित कथनों पर विचार करते हुए गद्यांश के अनुसार **सही कथन** को चयनित कर लिखिए। i. अफ़सोस जीवन का सच है। ii. जो चीज़ फलती - फूलती है, उसका अंत निश्चित है। iii. न्याय का चक्र गतिमान है। iv. अधिकार प्राप्ति संघर्ष से ही संभव है।	1
(घ)	कॉलम 1 को कॉलम 2 से सुमेलित कीजिए और सही विकल्प चुनकर लिखिए।	1

	कॉलम 1		कॉलम 2	
I	जीवन का सत्य	(1)	अधिकार - लिप्सा	
II	जीवन की स्थिरता	(2)	दुरंत प्राणधारा	
III	जीवन की गतिशीलता	(3)	बुढ़ापा और मरणशीलता	

i.   I-(3), II-(1), III-(2)
ii. I-(1), II-(3), III-(2)
iii. I-(1), II-(2), III-(3)
iv. I-(2), II-(1), III-(3)

(ङ)	गद्यांश का केंद्रीय भाव हो सकता है - i. सभी को अपने प्राण प्रिय हैं ii. स्थिर रहना भोलापन है iii. स्थिरता संघर्ष से आती है iv. परिवर्तन प्रकृति का नियम है	1
10.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 60 शब्दों में उत्तर दीजिए :-	**02x03 = 06**
(क)	भक्तिन पाठ के आधार पर पंचायत द्वारा किए गए अन्याय पर टिप्पणी कीजिए।	3
(ख)	'बाज़ार दर्शन' पाठ के आधार पर बताएँ कि भगत जी का व्यक्तित्व बाज़ार को कैसे सार्थकता देता है ?	3
(ग)	"काल मेघा पानी दे' - विज्ञान के तथ्य पर सहज प्रेम की विजय है।" - आशय स्पष्ट करें।	3
11.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 40 शब्दों में उत्तर दीजिए :-	**02x02 = 04**
(क)	लुट्टन पहलवान की किन दो चारित्रिक विशेषताओं को आप अपने जीवन में समायोजित करना चाहेंगे ?	2
(ख)	शिरीष के फूल पाठ के आधार पर स्पष्ट करें कि लेखक गाँधीजी और शिरीष को एक समान क्यों बताता है ?	2
(ग)	बाबा साहेब भीमराव आंबेडकर के अनुसार दासता की व्यापक परिभाषा	2

	क्या है?	
12.	निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं **दो** प्रश्नों के लगभग 100 शब्दों में उत्तर दीजिए :-	**02x05=10**
(क)	कहानी 'सिल्वर वैडिंग' के आधार पर उन भारतीय जीवन-मूल्यों को समझाएँ जो समय के साथ बदल रहे हैं।	5
(ख)	कविता के प्रति लगाव के बाद लेखक की अकेलेपन को लेकर धारणा क्यों बदल गई ? 'जूझ' पाठ के आधार पर उत्तर दीजिए।	5
(ग)	यदि आप पर्यटक के रूप में मोहनजोदड़ो जाएँ तो आप क्या–क्या देख सकते हैं ? 'अतीत में दबे पाँव' पाठ के आधार पर लिखें।	5
	--**x**----**x**----**x**----**x**--	

अंक योजना

प्रतिदर्श प्रश्न पत्र 2024-25

विषय - हिंदी (आधार)

विषय कोड – (302)

कक्षा - बारहवीं

निर्धारित समय: 03 घंटे   अधिकतम अंक : 80 अंक

सामान्य निर्देश :-

- अंक योजना का उद्देश्य मूल्यांकन को अधिकाधिक वस्तुनिष्ठ बनाना है।
- वस्तुपरक प्रश्नों के उत्तरों का मूल्यांकन निर्दिष्ट अंक योजना के आधार पर ही किया जाए।
- वर्णनात्मक प्रश्नों के अंक योजना में दिए गए उत्तर बिंदु अंतिम नहीं हैं। ये सुझावात्मक एवं सांकेतिक हैं।
- यदि परीक्षार्थी इन सांकेतिक बिंदुओं से भिन्न, किंतु उपयुक्त उत्तर दे तो उसे अंक दिए जाएँ ।
- मूल्यांकन कार्य निजी व्याख्या के अनुसार नहीं, बल्कि अंक योजना में निर्दिष्ट निर्देशानुसार ही किया जाए।

प्रश्न संख्या	खंड - क (अपठित बोध)	अंक (18)
1.	गद्यांश पर आधारित प्रश्न	(10)
(क)	ii सकारात्मक या नकारात्मक होने पर	1
(ख)	iii जीतने की इच्छा	1
(ग)	iii केवल कथन (I), (II) और (III) सही हैं।	1
(घ)	धैर्य के साथ सुनना, समझना, मनन करना, फिर बोलना	1
(ङ)	सकारात्मक या नकरात्मक भाव की संचारक बातें ही होती हैं।	2
(च)	मनुष्य जो बातें करे - उनमें सकारात्मक भाव हों, संवेदनशीलता हो, राग हो, स्नेहिल हों।	2

(छ)	अविश्वसनीयता का संचार होता है, जिससे आपसी संबंध बिगड़ जाते हैं।	2
2.	पद्यांश पर आधारित प्रश्न	**(08)**
(क)	i केवल कथन (I) सही है।	1
(ख)	iii गलत और झूठे आँकड़े	1
(ग)	iv I-(3), II-(1), III-(2)	1
(घ)	आंकड़ों से अत्यधिक घिरे रहना।	1
(ङ)	आँकड़ों से भ्रम उत्पन्न किया जाता है। इंसान झूठ को सच मानने लगता है। संख्याओं का लंबा - चौड़ा जाल बुना जाता है, जो भ्रामक होता है।	2
(च)	कवि आंकड़ों का शिकार हो सकता था। सभी अपनी बात समझाने के लिए आँकड़ों के खेल में लगे हैं। आँकड़ों को अपने हित में बढ़ा - चढ़ाकर पेश कर रहे हैं। आँकड़े सच को सामने लाने की जगह सच को छिपाने के लिए अपनी सुविधानुसार दर्शाए जा रहे हैं।	2
प्रश्न संख्या	**खंड – ख (अभिव्यक्ति और माध्यम पुस्तक पर आधारित प्रश्न)**	**अंक (22)**
3.	दिए गए विषयों में से किसी **एक** विषय पर लगभग 120 शब्दों में रचनात्मक लेख :- आरंभ -- 01 अंक विषयवस्तु -- 03 अंक प्रस्तुति -- 01 अंक भाषा -- 01 अंक	**01x06=06**
4.	किन्हीं **चार** प्रश्नों के लगभग 40 शब्दों में उत्तर :-	**04x02 = 08**
(क)	कहानी और नाटक दोनों में कहानी, पात्र, परिवेश, कहानी का क्रमिक विकास, संवाद, द्वंद्व, चर्म उत्कर्ष होता है।	2
(ख)	ऐसे विषय जिसकी कभी आशा भी न की हो	2

	विषय कोई भी - जो पहले से पढ़ा नहीं या रटा रटाया न हो	
(ग)	श्रव्य माध्यम है। - 01 अंक सीमाएँ :- ½ + ½ अंक - रेडियो में अखबार की तरह पीछे लौटकर सुनने की सुविधा नहीं है। - अगर रेडियो बुलेटिन में कुछ भी भ्रामक या अरुचिकर है, तो संभव है कि श्रोता तुरंत स्टेशन बंद कर दे। *उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।*	2
(घ)	जिसका संबंध किसी खास अखबार से ना हो और वह भुगतान के आधार पर अलग - अलग अखबारों के लिए लिखता हो।	2
(ङ)	लाभ :- 01 + 01 अंक - ये आपकी मौलिक रचना होगी - लेखन कौशल में अत्यधिक विकास होगा *उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।*	2
5.	किन्हीं **दो** प्रश्नों के लगभग 80 शब्दों में उत्तर :-	**02x04 = 08**
(क)	तात्पर्य - जिसे छापा गया हो। मुद्रित माध्यमों के तहत अखबार, पत्रिकाएँ, पुस्तकें आदि - 01 अंक विशेषताएँ :- 03 अंक - स्थायित्व होता है। - रुचि और इच्छा के अनुसार धीरे-धीरे पढ़ सकते हैं। - पढ़ते-पढ़ते कहीं भी रुककर सोच-विचार कर सकते हैं। *उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।*	4

(ख)	समाचार लेखन की बुनियादी शैली है - 01 अंक तीन भाग :- 03 अंक मुखड़ा या इंट्रो बॉडी निष्कर्ष या समापन	4
(ग)	खेल में कैरियर आज अपने उफान पर, खेल पत्रकारों के लिए अद्भुत कैरियर के अवसर - 02 अंक खेल पत्रकार की विशेषताएँ :- 02 अंक ▪ खेल की तकनीक, नियमों, बारीकियों की समझ ▪ खेल विशेष में कीर्तिमानों की जानकारी ***उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।***	4

प्रश्न संख्या	खंड - ग (पाठ्यपुस्तक आरोह तथा वितान पर आधारित प्रश्न)	अंक (40)
6.	काव्यांश - पर आधारित प्रश्नों के उत्तर उत्तर :-	05x01=05
(क)	iv शोषित वर्ग	1
(ख)	iii अत्यधिक महत्वाकांक्षी होना	1
(ग)	ii बादलों	1
(घ)	iv कथन (A) सही है तथा कारण (R) दोनों सही हैं, कारण (R) कथन (A) की सही व्याख्या करता है।	1
(ङ)	iii बड़े वृक्ष और पूँजीपति	1
7.	किन्हीं **दो** प्रश्नों के लगभग 60 शब्दों में उत्तर :-	02x03 = 06

(क)	▪ कवि एकाकी जीवन व्यतीत कर रहा है ▪ शाम के समय उसके आने के इंतजार में व्याकुल होने वाला कोई नहीं ▪ अतः वह किसके लिए तेजी से घर जाने की कोशिश करे ▪ इस प्रकार के विचार आते ही राही के कदम धीमे हो जाते हैं		3
(ख)	▪ तुलसीदास ने जो कहा, वह आज भी प्रासंगिक ▪ मूल्यहीनता, नारी की स्थिति, आर्थिक दुरावस्था का चित्रण किया है ▪ इनमें अधिकतर समस्याएँ आज भी विद्यमान हैं	3
(ग)	▪ कवि ने कवि - कर्म को कृषि के कार्य के समान बताया है ▪ जिस तरह किसान खेत में बीज बोता है, वह बीज अंकुरित, पल्लवित होकर पौधा बनता है ▪ इसी तरह किसी क्षण - एक रचना, विचार तथा अभिव्यक्ति का बीज बोया जाता है	3
8.	किन्हीं **दो** प्रश्नों के लगभग 40 शब्दों में उत्तर :-	**02x02 = 04**
(क)	▪ बात को सहज रूप से न कहकर तोड़-मरोड़ कर या घुमा-फिराकर कहने का प्रयास ▪ अंततः बात उलझ जाती है	2
(ख)	▪ कविता कुछ लोगों की संवेदनहीनता प्रकट करती है ▪ लोग धन कमाने एवं अपने कार्यक्रम के प्रचार-प्रसार के लिए दूसरों की भावनाओं को ठेस पहुँचाते हैं ▪ किसी की करुणा बेचकर अपनी आय बढ़ाना चाहते हैं ▪ कार्यक्रम को रोचक बनाने के लिए उल्टे सीधे प्रश्न पूछते हैं। ▪ अतः प्रासंगिक है	2
(ग)	▪ बच्चे जिद पर आते हैं तो अपनी इच्छा पूरी करवाने के लिए नाना प्रकार की हरकतें किया करते हैं ▪ बच्चे का ठुनकना, पाँव पटकना. रोना आदि सभी क्रियाएँ बालपन की सूचक हैं।	2

9.	गद्यांश - पर आधारित प्रश्नों के उत्तर :-	05x01=05
(क)	i जहाँ हैं, वहीं बने रहेंगे।	1
(ख)	iii जन्म और मृत्यु जगत का प्रामाणिक सत्य है	1
(ग)	ii जो चीज़ फलती - फूलती है, उसका अंत निश्चित है।	1
(घ)	i I-(3), II-(1), III-(2)	1
(ङ)	iv परिवर्तन प्रकृति का नियम है	1
10.	किन्हीं **दो** प्रश्नों के लगभग 60 शब्दों में उत्तर :-	02x03 = 06
(क)	▪ भक्तिन की बेटी के संदर्भ में पंचायत द्वारा किया गया न्याय असल में अन्याय था ▪ तर्कहीन और अंधे कानून पर आधारित है ▪ संपति के लालच में षडयंत्र कर भोली बच्ची को धोखे से जाल में फंसाया ▪ लड़की की कोई बात नहीं सुनी गई ▪ पंचायत के अंधे कानून से बुरे की जीत - पीड़ित की हार हुई	3
(ख)	▪ निश्चित समय पर चूरन बेचने के लिए निकलना ▪ निश्चित आमदनी के पश्चात चूरन को बच्चों में मुफ्त बाँट देना ▪ बाज़ार के आकर्षण से प्रभावित ना होना ▪ पैसे की व्यंग्य शक्ति से निर्लिप्त रहते हैं। ▪ उनकी आवश्यकताएँ और इच्छाएं सीमित हैं, अतः बाज़ार का आकर्षण उनपर कार्य नहीं करता।	3
(ग)	▪ विज्ञान का अपना तर्क है जो तथ्य से उपजा है ▪ लोक मान्यता का आधार विश्वास है जो सहज प्रेम से आता है	3
11.	किन्हीं **दो** प्रश्नों के लगभग 40 शब्दों में उत्तर :-	02x02 = 04

(क)	**दो चारित्रिक विशेषताएँ** :- 01+01 अंक
	
	  ▪ **साहसी**
	  ▪ **संवेदनशील**
	
	उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।
		2

(ख)	▪ शिरीष चिलचिलाती धूप, लू वर्षा और आँधी में भी अविचल खड़ा रहता है ▪ गाँधी जी आजादी के संग्राम में अन्याय, भेदभाव और हिंसा को झेलाते रहे ▪ शिरीष अनासक्त रहकर अपने वातावरण से रस खींचकर सरस, कोमल बना रहता है ▪ गाँधी जी अन्यायी शासन के विरोध में डटकर खड़े रहे	2
(ग)	▪ दासता केवल कानूनी पराधीनता नहीं ▪ व्यक्ति को अपना पेशा चुनने की आज़ादी न होना या अपनी इच्छानुसार आचरण न करने देना	2
12.	किन्हीं **दो** प्रश्नों के लगभग 100 शब्दों में उत्तर :-	**02x05=10**

(क)	जीवन मूल्य जो बदल रहे हैं :-
	
	  ▪ संयुक्त परिवार का टूटता ढाँचा
	  ▪ परंपराओं व रीति - रिवाज़ों से अलगाव
	  ▪ बड़ों का अनादर
	  ▪ त्याग भावना की कमी
	
	उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।
		5

(ख)	▪ पहले लेखक ढोर चराते समय, खेत में पानी लगाते हुए और अन्य काम करते हुए अकेलापन महसूस करता था ▪ उसे कष्ट होता था ▪ कविता के प्रति लगाव के बाद वह खेतों में पानी देते समय, भैंस चराते समय कविताओं में खोया रहता, तुकबंदी करता, अकेले में	5

	ऊंची आवाज में कविता गाता, अभिनय व नृत्य करता, कविता गाते हुए नाचने लगता ▪ अतः उसे अकेलापन अच्छा लगने लगा था।	
(ग)	▪ अजायबघर ▪ ढकी हुई पक्की नालियाँ ▪ अन्न भंडार ▪ बौद्ध स्तूप ▪ विशाल स्नानागार व कुंड *उपरिलिखित बिंदु सांकेतिक हैं। अन्य बिंदु विचारणीय व स्वीकार्य हो सकते हैं।*	5
	--x----x----x----x--	

आदर्शप्रश्नपत्रम् - 2024-2025	
संस्कृतम् (केन्द्रिकम्) कोड् सङ्ख्या -322	
कक्षा – द्वादशी	

समयः – होरात्रयम्   पूर्णाङ्काः - 80

सामान्यनिर्देशाः : -

- कृपया सम्यक्तया परीक्षणं कुर्वन्तु यत् अस्मिन् प्रश्नपत्रे 11 पृष्ठानि मुद्रितानि सन्ति।
- कृपया सम्यक्तया परीक्षणं कुर्वन्तु यत् अस्मिन् प्रश्नपत्रे 18 प्रमुखाः प्रश्नाः सन्ति।
- अस्य प्रश्नपत्रस्य पठनाय 15 निमेषाः निर्धारिताः सन्ति। अस्मिन् अवधौ केवलं प्रश्नपत्रं पठनीयम् उत्तरपुस्तिकायां च किमपि न लेखनीयम्।
- उत्तरलेखनात् पूर्वं प्रश्नपत्रानुसारं प्रश्नस्य क्रमाङ्कः अवश्यं लेखनीयः।
- प्रत्येकं खण्डम् अधिकृत्य उत्तराणि एकस्मिन् स्थाने क्रमेण लेखनीयानि।
- सर्वेषां प्रश्नानाम् उत्तराणि संस्कृतेन लेखनीयानि।
- प्रश्नानां निर्देशाः ध्यानेन अवश्यं पठनीयाः।

प्रश्नपत्रस्वरूपम् -

अस्मिन् प्रश्नपत्रे चत्वारः खण्डाः सन्ति -

खण्डः (क) अपठित-अवबोधनम्	- 10 अङ्काः
खण्डः (ख) रचनात्मककार्यम्	- 15 अङ्काः
खण्डः (ग) अनुप्रयुक्तव्याकरणम्	- 20 अङ्काः
खण्डः (घ) I. पठित-अवबोधनम्	- 25 अङ्काः
II. संस्कृत-साहित्येतिहास-परिचयः	- 10 अङ्काः

खण्डः – क	
अपठित – अवबोधनम् - 10 अङ्काः	

1.	अधोलिखितं गद्यांशं पठित्वा प्रदत्तप्रश्नानामुत्तराणि संस्कृतेन लिखत –	10
	मीरा कृष्णभक्तेषु अन्यतमा अस्ति। तस्याः जन्म १४९८ ई. तमे वर्षे कूडकी इति ग्रामे रत्नसिंहस्य गृहे अभवत्। अस्याः पतिः चित्तौड़गढ़स्य महाराजः भोजराजः आसीत्। शैशवात् एव मीरा कृष्णभक्तिलीना आसीत्। १५२१ इति वर्षे युद्धे व्रणितः तस्याः पतिः दिवङ्गतः। वैधव्यकाले तस्याः समयः विशेषतः कथाकीर्तनयोः पूजापाठयोः हरिचर्यायां च व्यतीतो भवति स्म। मीरायाः एतत्कृष्णप्रेम तस्याः देवराय	

विक्रमाय न रोचते स्म। सः तां नानाविधैः क्लेशैः अपीडयत्। एकदा सः पुष्पहारेण सह सर्पं प्रेषितवान्। अन्येद्युः तस्याः जीवनलीलां समापयितुं विषपूरितं चषकं प्रेषयत्। परमेश्वरानुकम्पया सर्पस्तां न अदशत्। विषम् अपि तस्याः कृते अमृतमिव अभवत्। तस्मात् तस्याः विश्वासः कृष्णभक्तौ दृढात्दृढतरोऽभवत्। मीरायाः भक्तिभावपूर्णानि गेयपदानि प्रतिप्रान्तं श्रद्धया गीयन्ते। इयं किम्वदन्ती प्रसिद्धा अस्ति यत् मीरा द्वारिकायां श्रीकृष्णमूर्तौं विलयङ्गता।

(अ) एकपदेन उत्तरत -(केवलं प्रश्नद्वयम्)   1×2=2

    (i) मीरायाः पतिः कः आसीत्?

    (ii) का द्वारिकायां श्रीकृष्णमूर्तौं विलयङ्गता?

    (iii) कस्मिन् ग्रामे मीरा जन्म अलभत?

(आ) पूर्णवाक्येन उत्तरत – (केवलं प्रश्नद्वयम्)   2×2=4

    (i) विक्रमः मीरां हन्तुं किं किम् अकरोत्?

    (ii) वैधव्यकाले मीरायाः समयः कथं व्यतीतो भवति स्म?

    (iii) मीरायाः विश्वासः कृष्णभक्तौ कथं दृढात्दृढतरोऽभवत्?

(इ) अनुच्छेदस्य (द्वि-त्रिशब्दात्मकं) समुचितं शीर्षकं लिखत।   1×1=1

(ई) यथानिर्देशम् उत्तरत- केवलं प्रश्नत्रयम्   1×3=3

    (i) 'एकदा सः पुष्पहारेण सह सर्पं प्रेषितवान्।' अत्र सः इति सर्वनामपदं कस्मै प्रयुक्तम्?

      (क) मीरायै   (ख) विक्रमाय

      (ग) चषकाय   (घ) रत्नसिंहाय

    (ii) 'मीरायाः एतत्कृष्णप्रेम तस्याः देवराय विक्रमाय न रोचते स्म।' इत्यत्र 'प्रेम' इति कर्तृपदस्य किं क्रियापदं प्रयुक्तम्?

      (क) मीरायाः   (ख) देवराय

      (ग) न   (घ) रोचते स्म

    (iii) 'सः तां नानाविधैः क्लेशैः अपीडयत्।' अत्र किं विशेषणपदं प्रयुक्तम्?

      (क) सः   (ख) ताम्

      (ग) नानाविधैः   (घ) क्लेशैः

    (iv) 'अमृतम्' इत्यस्य पदस्य किं विलोमपदमत्र प्रयुक्तम्?

      (क) चषकम्   (ख) विषम्

      (ग) व्रणितः   (घ) व्यतीतः

	खण्डः – ख	
	रचनात्मक–कार्यम् - 15 अङ्काः	
2.	भवान् स्वागतः। प्लास्टिक् इत्यस्य प्रयोगः पर्यावरण-नाशकः इति विषयम् अधिकृत्य मित्रम् सज्जितं प्रति लिखिते पत्रे रिक्तस्थानानि पूरयित्वा उत्तरपुस्तिकायां लिखत।	½×10=5

यूजी-01, संस्कृतिभवनम्

(i) ------------------

दिनाङ्कः : 12 अप्रैल, 2024

प्रिय मित्र (ii) ------------!

सस्नेहं (iii) -------------

     अत्र कुशलं तत्रास्तु। ह्यः एव मम विद्यालये 'त्यज प्लास्टिक् रक्ष पर्यावरणम्' इति विषये एका गोष्ठी अभवत्। अत्रैव मया प्रथमवारं (iv) --------- यत् प्लास्टिक् इत्यस्य परिणामाः दूरगामिनः घातकाश्च भवन्ति। अन्यानि सर्वाणि वस्तूनि मृत्तिकायां विनश्य विलीयन्ते परं (v) -------------- तु कदापि न अपक्षीयते। न इदं गलति न च विलीयते। एवं प्लास्टिक् इत्यस्य प्रयोगेण (vi) -------- कृते महती क्षतिः भवति। परं वयं प्रातः जागरणात् आरभ्य रात्रौ निद्रापर्यन्तं प्लास्टिक् इत्यस्य विविधवस्तूनां प्रयोगं (vii) -----------। किमधिकम् इयं लेखनी यया अहं लिखामि, अस्याः च पुनःपूरणी प्लास्टिक्-निर्मिता। कल्पयामि यदि एवमेव प्लास्टिक् इत्यस्य प्रयोगः वर्धिष्यते तर्हि किं भविष्यति ? वस्तुतः पर्यावरणस्य (viii) ------------- एव अस्माकं रक्षणम्। आशासे त्वमपि जागरूकः भूत्वा अन्येभ्यः अपि प्रेरणां प्रदास्यसि। गृहे (ix) ----------- मम प्रणामाः निवेदनीयाः।

भवतः अभिन्नमित्रम्

(x) --------------

<div align="center">मञ्जूषा</div>

कुर्मः, ज्ञातम्, प्लास्टिक्, पितृभ्याम्, सज्जित,नवदिल्लीतः, पर्यावरणस्य, रक्षणे, नमस्ते, स्वागतः।

3.	मञ्जूषाप्रदत्त-पदसहायतया अधोलिखितां कथां पूरयत –	½×10=5

एकः कश्चन महात्मा आसीत्। सः नित्यं (i) ------------- लग्नः एकस्मिन् आश्रमे निवसति स्म। भक्ताः तं महात्मानं मेलितुम् आगच्छन्ति स्म। ते स्वसमस्याः अपि यदा कदा (ii) ------------ कथयन्ति स्म। महात्मा अपि यथासामर्थ्यं तासां समाधानं सूचयति स्म। एकदा एका वृद्धा महिला महात्मानम् आगत्य (iii) --------- यत् अयं मम पौत्रः। एषः गुडस्य अत्यधिकं सेवनं करोति। कृपया भवान् एनं बोधयतु। महात्मा अवदत् यत् एकसप्ताहाद् अनन्तरम् आगच्छतु तदा (iv) -----------। सा पुनः एकसप्ताहाद् अनन्तरं महात्मानं (v) -------------------- बोधयितुं प्रार्थितवती। महात्मा

(vi) ---------------- एकसप्ताहादनन्तरम् आगन्तुम् अकथयत्। महात्मनि श्रद्धावती सा पुनः उक्ते समये प्राप्तवती। अधुना महात्मा तं बालकम् अबोधयत् – वत्स! अत्यधिकं (vii) --------- योग्यं न भवति। केभ्यश्चन दिवसेभ्यः अन्तरं सा वृद्धा महात्मानम् असूचयत् यत् तस्याः (viii) ----------- अधुना गुडभक्षणम् अत्यजत्। पुनः सा महात्मानम् अपृच्छत् यत् सः कथं वारद्वयं सप्ताहादनन्तरम् आगच्छतु इति अकथयत् यतः 'वत्स! अत्यधिकं गुडभक्षणं योग्यं न भवति।' इत्येतत् वाक्यं तु पूर्वमपि वक्तुं (ix) ---------------? तदा महात्मा अकथयत् यदा भवती प्रार्थितवती आसीत् तदा अहमपि बहु गुडभक्षणं करोमि स्म, अतः अन्यं गुडत्यागाय वक्तुं मम अधिकारः न आसीत्। अहम् अभ्यासेन प्रयत्नपूर्वकं गुडत्यागम् अकरवम्। अतः अहं ततः परमेव बालकं बोधितवान् अपि च मम वचसः तस्मिन् प्रभावोऽपि जातः। वृद्धा अन्ये भक्ताश्च श्रद्धया (x) ------------- अभवन्।

मञ्जूषा

पौत्रः, शक्यते स्म, ईशस्तुत्याम्, प्रार्थितवती, पुनरेकदा, बोधयिष्यामि, नतमस्तकाः, महात्मानम्, पौत्रम्, गुडभक्षणम्।

अथवा

अधोलिखितसंवादे मञ्जूषायाः सहायतया रिक्तस्थानानि पूरयत-

परिधिः - आद्ये! त्वम् अद्य अल्पाहारार्थं किम् आनीतवती?

आद्या - (i) ---

उदितः - अहम् ओदनं सूपञ्च आनीतवान्। परिधे! त्वं मध्यावकाशे भक्षणाय किम् आनयः?

परिधिः - (ii) --

मीशा - मम पार्श्वे आलुकस्य चिप्स शीतलपेयं चास्ति।

(iii) --?

परिधिः - आम्, मह्यं शीतलपेयं रोचते।

अभ्युदयः - (iv) ---

परिधिः - यद् वस्तु अस्मभ्यं न रोचते, तत् वयं कथं खादेम?

अभ्युदयः - (v) -- ।

परिधिः - भवता सत्यं कथितम्। अग्रे वयं यत् स्वास्थ्याय हितकरं भवेत् तदेव आनेष्यामः।

मञ्जूषा

(i) सर्वदा तथ्यमिदं स्मरणीयं यत् शुद्धं सात्त्विकं पौष्टिकं च भोजनमेव स्वास्थ्यरक्षकं भवति।

(ii) मम माता मह्यं रोटिकां आलुकस्य शाकं च दत्तवती। परम् अहं तद् न इच्छामि।

1×5=5

(iii) किं विस्मृतं त्वया यत् शीतलपेयं, चिप्सादिकानि जङ्कभोज्यवस्तूनि स्वास्थ्याय अहितकराणि भवन्ति।

(iv) अहम् इडली-साम्भरखाद्यम् आनीतवती। उदित! त्वं किम् आनयः?

(v) किं भवत्यै शीतलपेयं रोचते?

4.	निम्नलिखितवाक्येषु केषाञ्चन पञ्चवाक्यानां संस्कृतेन अनुवादं कुरत –	1×5=5
	(i) वैभव जोर जोर से हँसता है। Vaibhav laughs loudly.	
	(ii) तुम सब क्या पढ़ रहे हो? What are you all reading?	
	(iii) बच्चे कहानी सुनेंगे। Children will listen the story.	
	(iv) तुम दोनों जोर से मत बोलो। Both of you don't speak loudly.	
	(v) किसान खेत में चले गए। The farmers went to the field.	
	(vi) अब हम दोनों को सो जाना चाहिए। Now both of us should sleep.	

खण्डः – ग

अनुप्रयुक्तव्याकरणम्   20 अङ्काः

5.	अधोलिखितवाक्येषु रेखाङ्कितपदानां सन्धिं सन्धिच्छेदं वा कृत्वा लिखत-(केवलं प्रश्नषट्कम्)	1×6=6
	(i) **धर्मात् + न** प्रमदितव्यम्।	
	(ii) किम् **अत्रापि + अलोभः**?	
	(iii) वैवस्वतो **मनुर्नाम** मनीषिणां माननीयः।	
	(iv) प्रभूणाम् आज्ञाम् **उत् + लङ्घ्य** आयातीति आक्रुश्यते।	
	(v) सः चिरं **तपस्तेपे**।	
	(vi) **न + एकेन** अपि समं गता वसुमती।	
	(vii) कटु सत्यं **खल्वेतत्**।	

6.	अधोलिखित-वाक्येषु रेखाङ्कितपदानां समुचितं समस्तपदं विग्रहवाक्यं वा प्रदत्तविकल्पेभ्यः चित्वा लिखत (केवलं प्रश्नपञ्चकम्)	1×5=5

(i) परमात्मा **अनश्नन्** एव अभिचाकशीति ।

    (क) अन् अश्नन्   (ख) अन् श्नन्

    (ग) न अश्नन्   (घ) अश्नस्य अभावः

(ii) परस्परमनुव्रतौ **पतिपत्न्यौ** त्रिवर्गं साधयतः ।

    (क) पतिः च पत्नी च   (ख) पति च पत्न्यौ च

    (ग) पती च पत्न्यौ च   (ग) पत्या सह पत्नी

(iii) **अपराधेन सह** अपि मे वचः क्षन्तव्यम् ।

    (क) अपराधसमम्   (ख) निरपराधम्

    (ग) सापराधम्   (घ) अपराधस्य योग्यम्

(iv) **पाण्डित्येन सम्भृता मतिः यस्य सः** मितप्रभाषी भवति ।

    (क) पाण्डित्यसम्भृतमतिः   (ख) पण्डितमतिः

    (ग) पाण्डित्येनसम्भृतमतिः   (घ) पण्डितः

(v) **दीर्घप्रयासेन** कृतं हि वस्तु ।

    (क) दीर्घात् प्रयासेन   (ख) दीर्घेण प्रयासेन

    (ग) दीर्घ प्रयासेन   (घ) दीर्घः प्रयासः

(vi) राजभवने रात्रौ **प्राप्तपरिचयपत्राः** एव प्रविशन्ति ।

    (क) प्राप्तं परिचयपत्रं यैः ते   (ख) प्राप्तं परिचयपत्रं यस्मात् सः

    (ग) प्राप्तं परिचयपत्रं येषां तेषाम् (घ) प्राप्तं परिचयपत्रम् येन सः

7.	अधोलिखित-वाक्येषु रेखाङ्कितपदेषु प्रकृतिप्रत्ययौ संयोज्य विभज्य वा समुचितं रूपं प्रदत्तविकल्पेभ्यः चिनुत – (केवलं प्रश्नषट्कम्)	1×6=6

(i) सत्यान्न **प्रमदितव्यम्** ।

    (क) प्र+मद्+तव्यत्   (ख) प्र+मद्+शानच् न्

    (ग) प्र+मद्+अनीयर्   (घ) प्र+मद्+क्त

(ii) भृकुटिः नियतीव **व्यवस्थिता** ।

    (क) व्यवस्थित + तल्   (ख) व्यवस्थित + टाप्

    (ग) वि + स्थिता   (घ) व्यवस्थित + ङीप्

(iii) तदन्वये शुद्धिमति **प्रसूतः** शुद्धिमत्तरः ।

    (क) प्र + सू + क्तिन्   (ख) प्र + सू + तः

    (ग) प्र + सू + क्त   (घ) प्र + सू + क्तवतु

(iv) दौवारिकः तु तम् **नी + शतृ** एव प्राचलत्।

(क) नयत्   (ख) नयन्

(ग) नीतवान्   (घ) नीतिः

(v) **गुण + इन्** गुणं वेत्ति, न वेत्ति निर्बलः।

(क) गुणः   (ख) गुणिनः

(ग) गुणी   (घ) गुणिनि

(vi) भोजः किमपि वत्सराजं **कथ् + क्तवतु**।

(क) कथितवान्   (ख) कथितवती

(ग) कथयन्   (घ) कथितः

(vii) मया कतिपय बिन्दवः एव **प्राप्ताः**।

(क) प्र + आप् + क्तवतु   (ख) प्र + आप् + क्तिन्

(ग) प्र + आप् + तल्   (घ) प्र + आप् + क्त

8.	प्रदत्तविकल्पेभ्यः उचितविभक्तियुक्तं पदं चित्वा रिक्तस्थानानि पूरयत - (केवलं प्रश्नत्रयम्)	1×3=3

(i) तस्याः कस्मिन् ---------------------- स्पृहा, येन अकार्यं करिष्यति।

(क) फले   (ख) फलाय

(ग) फलात्   (घ) फलस्य

(ii) दिलीपस्य ---------------------- सदृशः आगमः आसीत्।

(क) प्रज्ञायाः   (ख) प्रज्ञाम्

(ग) प्रज्ञया   (घ) प्रज्ञा

(iii) राजा ---------------------- राज्यं दत्त्वा तदुत्सङ्गे भोजं मुमोच।

(क) मुञ्जम्   (ख) मुञ्जाय

(ग) मुञ्जस्य   (घ) मुञ्जेन

(iv) ---------------------- न प्रमदितव्यम्।

(क) स्वाध्याये   (ख) स्वाध्यायस्य

(ग) स्वाध्यायेन   (घ) स्वाध्यायात्

खण्डः - घ   भागः - I

पठितांशावबोधनम्   25 अङ्काः

9.	अधोलिखितं गद्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत – राज्ञः वह्निप्रवेश-कार्यक्रमं श्रुत्वा वत्सराजः बुद्धिसागरं नत्वा शनैः शनैः प्राह - तात! मया भोजराजो रक्षित एवास्ति। पुनः बुद्धिसागरेण तस्य कर्णे किमपि कथितम्, यन्निशम्य वत्सराजः ततो निष्क्रान्तः। पुनः राज्ञो वह्निप्रवेशकाले कश्चन कापालिकः सभां समागतः। सभामागतं कापालिकं दण्डवत् प्रणम्य	5

मुञ्जः प्रावोचत् - हे योगीन्द्र! मया हतस्य पुत्रस्य प्राणदानेन मां रक्षेति। अथ कापालिकस्तं प्रावोचत् - राजन्! मा भैषीः। शिवप्रसादेन सः जीवितो भविष्यति। तदा श्मशानभूमौ कापालिकस्य योजनानुसारं भोजः तत्र समानीतः। 'योगिना भोजो जीवितः इति कथा लोकेषु प्रसृता।

अ. एकपदेन उत्तरत -   (केवलं प्रश्नद्वयम्)

   (क) भोजः कुत्र समानीतः?

   (ख) राज्ञः वह्निप्रवेशकाले कः सभां समागतः?

   (ग) भोजः कस्य प्रासादेन जीवितो भविष्यति?

आ. पूर्णवाक्येन उत्तरत -   (केवलं प्रश्नद्वयम्)

   (क) वत्सराजो बुद्धिसागरं नत्वा किं प्राह?

   (ख) लोकेषु का कथा प्रसृता?

   (ग) मुञ्जः कापालिकं किं प्रार्थयत्?

इ. यथानिर्देशम् उत्तरत -   (केवलं प्रश्नद्वयम्)

   (क) ‘प्राह’ इति क्रियापदस्य कर्तृपदं किम्?

   (ख) ‘मया हतस्य पुत्रस्य प्राणदानेन मां रक्षेति।’ अत्र ‘पुत्रस्य’ इति पदस्य किं विशेषणं प्रयुक्तम्?

   (ग) ‘अग्निः’ इति पदस्य पर्यायपदं किमत्र प्रयुक्तम्?

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10. अधोलिखितं पद्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत -

अल्पज्ञ एव पुरुषः प्रलपत्यजस्रं
पाण्डित्यसम्भृतमतिस्तु मितप्रभाषी।
कांस्यं यथा हि कुरुतेऽतितरां निनादं
तद्वत्सुवर्णमिह नैव करोति नादम् ॥

अ. एकपदेन उत्तरत - (केवलं प्रश्नद्वयम्)

   (क) किं अतितरां निनादं करोति?

   (ख) अल्पज्ञः पुरुषः कथं प्रलपति?

   (ग) पाण्डित्यसम्भृतमतिः कीदृशः भवति?

आ. पूर्णवाक्येन उत्तरत - (केवलं प्रश्नद्वयम्)

   (क) कः निरन्तरं प्रलापं करोति?

   (ख) कांस्यवत् नादं कः न करोति?

   (ग) अल्पज्ञ-पण्डितयोः मध्ये कः भेदः?

इ. यथानिर्देशम् उत्तरत - (केवलं प्रश्नद्वयम्)

   (क) श्लोके ‘निरन्तरम्’ इत्यर्थे किं पदम्?

   (ख) श्लोके ‘प्रलपति’ इति क्रियायाः कर्तृपदं किम्?

	½×2=1
	1×2=2
	1×2=2

	5
	½×2=1
	1×2=2
	1×2=2

	(ग) श्लोके 'निनादम्' इत्यस्य किं विशेषणपदं विद्यते?	
11.	अधोलिखितं नाट्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत -	5
	कुण्डला - जाने तेऽभिरुचिम् अध्ययने अध्यापने च। परं यथा लतेयं सहकारमवलम्बते तथैव	
	नारी जीवनयात्रायां कमपि सहचरम् अपेक्षते यः तस्याः अवलम्बनं स्यात्।	
	मदालसा - नास्ति मत्कृते आवश्यकता अवलम्बनस्य। स्वयं समर्था जीवनपथे चलितुमहम्।	
	न कस्यापि सङ्केतैः नर्तितुं पारयामि।	
	कुण्डला - नर्तिष्यसि तदा एकाकिनी एव।	
	(विहस्य) यदि त्वं शीघ्रमेव पतिगृहं गमिष्यसि तदा एकाकिनी भविष्यामि।	
	मदालसा - परम् एकः उपायः अपि चिन्तितः मया।	
	कुण्डला - कः उपाय ?	
	मदालसा -सङ्गीतसाहित्यमाध्यमेन ब्रह्मविद्यां सरसां विधाय बहुभ्यः शिशुभ्यः शिक्षणं प्रदास्यामि।	
	(अ) एकपदेन उत्तरत - (केवलं प्रश्नद्वयम्)	½×2=1
	(क) मदालसा केभ्यः शिक्षणं प्रदास्यति?	
	(ख) कुण्डला मदालसायाः किं जानाति?	
	(ग) नारी कुत्र कमपि सहचरम् अपेक्षते?	
	(आ) पूर्णवाक्येन उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) कुण्डला विहस्य मदालसां किं कथयति?	
	(ख) मदालसा कस्मिन् स्वयं समर्था अस्ति?	
	(ग) केन माध्यमेन मदालसा बहुभ्यः शिशुभ्यः शिक्षणं प्रदास्यति?	
	(इ) निर्देशानुसारम् उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) 'एकः' इति पदस्य विशेष्यं किम्?	
	(ख) 'गमिष्यसि' इति क्रियापदस्य कर्तृपदं किम्?)	
	(ग) अत्र 'हसित्वा' इत्यर्थे किं पदं प्रयुक्तम्?	
12.	अधोलिखितस्य पद्यस्य भावार्थं मञ्जूषाप्रदत्तपदैः पूरयित्वा पुनः लिखत –	1×3=3
	न दुर्जनः सज्जनतामुपैति शठः सहस्रैरपि शिक्ष्यमाणः।	
	चिरं निमग्नोऽपि सुधा-समुद्रे न मन्दरो मार्दवमभ्युपैति ॥	
	भावार्थः – दुर्जनः शठः (i) ----------- सज्जनैः अपि शिक्ष्यमाणः कदाचित् (ii) ----------	
	न प्राप्नोति। यथा अमृतस्य समुद्रे चिरकालं यावत् (iii) --------- मन्दरः पर्वतः	
	कोमलत्वं न प्राप्नोति। अतः शठस्य अवबोधनं तु सर्वथा व्यर्थमेव।	
	मञ्जूषा	
	सज्जनताम्, सहस्रैः, निमग्नः।	

अथवा

प्रदत्तात् भावार्थत्रयात् शुद्धं भावार्थं चित्वा लिखत-

(क) "नैकेनापि समं गता वसुमती नूनं त्वया यास्यति।"

    (i) मृत्योः अन्तरम् एषा पृथिवी केनापि सह न गतवती निश्चितमेव त्वया सह गमिष्यति।

    (ii) एषा पृथिवी अनेकैः सह गमिष्यति।

    (iii) एषा वसुमती कदापि न गच्छति।

(ख) "एकेनापि सुपुत्रेण सिंही स्वपिति निर्भयम्।"

    (i) पुत्रेण मातुः गौरवं न वर्धते।

    (ii) गुणवता पुत्रेण एव माता निर्भया भवति।

    (iii) गुणहीनेन पुत्रेण माता निर्भया भवति।

(ग) 'रोदितव्ये काले सौमित्रिणा धनुर्गृहीतम्।"

    (i) सुमित्रा अपि वनं गच्छति।

    (ii) लक्ष्मणः रामस्य वनगमनं श्रुत्वा रोदिति।

    (iii) शोकस्य समये लक्ष्मणः युद्धाय तत्परः अस्ति।

		1×3=3

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13. अधोलिखित- श्लोकस्य प्रदत्ते अन्वये रिक्तस्थानपूर्तिं कुरुत –

    वनगमननिवृत्तिः पार्थिवस्यैव तावन्मम पितृपरवत्ता बालभावः स एव।

    नवनृपतिविमर्शे नास्ति शङ्का प्रजानामथ च न परिभोगैर्वञ्चिता भ्रातरो मे ॥

अन्वयः – तावत् (i) ---------------- वनगमननिवृत्तिः एव मम पितृपरवत्ता बालभावः सः एव। (ii) ------------- प्रजानाम् शङ्का न अस्ति। अथ च मे (iii) ------------- परिभोगैः न वञ्चिताः।

मञ्जूषा

भ्रातरः, नवनृपतिविमर्शे, पार्थिवस्य।

1×3=3

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14. 'क' स्तम्भस्य वाक्यांशानां 'ख' स्तम्भस्य वाक्यांशैः सह मेलनं कुरुत -

'क' स्तम्भः	'ख' स्तम्भः
(i) ज्ञाने मौनं क्षमा शक्तौ	(क) शौचमद्रोहो नातिमानिता।
(ii) तेजः क्षमा धृतिः	(ख) प्रजायै गृहमेधिनाम्
(iii) आह्लादितं कुलं सर्वम्	(ग) त्यागे श्लाघाविपर्ययः
(iv) यशसे विजिगीषूणाम्	(घ) यथा चन्द्रेण शर्वरी

½×4=2

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15. अधोलिखितेषु वाक्येषु रेखाङ्कितपदानां प्रसङ्गानुसारं शुद्धम् उत्तरं चित्वा लिखत –

    (i) **भृत्यै** न प्रमदितव्यम्।

    (ii) रोदितव्ये काले **सौमित्रिणा** धनुर्गृहीतम्।

½×4=2

(iii) ततस्तयोरेवम् अभूत् **आलापः**।

(iv) सेतुर्येन महोदधौ विरचितः क्वासौ **दशास्यान्तकः**।

<p align="center">**मञ्जूषा**</p>

<p align="center">वार्तालापः, ऐश्वर्याय, श्रीरामः, लक्ष्मणेन</p>

खण्डः – घ भागः - ii   10 अङ्काः
सामान्यसंस्कृतसाहित्यपरिचयः

16.	अधोलिखित-प्रश्नानाम् उत्तराणि लिखत- (केवलं प्रश्नत्रयम्)	1×3=3

(i) ‘कार्याकार्यव्यवस्थितिः’ इत्यस्य पाठस्य सन्दर्भग्रन्थः कः?

(ii) ‘तैत्तिरीयोपनिषद्’ इति ग्रन्थात् कः पाठः सङ्कलितः?

(iii) अम्बिकादत्तव्यासस्य रचनायाः कः पाठः सङ्कलितः?

(iv) ‘प्रजानुरञ्जको नृपः’ इत्यस्य पाठस्य कर्त्ता कः?

17.	मञ्जूषायाः समुचितं पदं चित्वा रिक्तस्थानानि पूरयत – (केवलं प्रश्नत्रयम्)	1×3=3

(i) ------------ सर्गेषु निबद्धं भवति।

(ii) भारवेः ---------- प्रसिद्धं वर्तते।

(iii) दण्डिनः -------- अतिगौरवं वहति।

(iv) ऐतिहासिकघटनाधारितं गद्यकाव्यम् ------------- इति कथ्यते।

<p align="center">**मञ्जूषा**</p>

<p align="center">पदलालित्यम्, अर्थगौरवम्, आख्यायिका, महाकाव्यम्</p>

18.	समुचितं मेलयाम।	1×4=4

भागः - क	भागः - ख
(i) उरुभङ्गनाटकम्	(क) शूद्रकः
(ii) मृच्छकटिकम्	(ख) सप्ताङ्कात्मकं नाटकम्
(iii) मुद्राराक्षसम्	(ग) भवभूतेः कृतिः
(iv) मालतीमाधवम्	(घ) भासः

<p align="center">*************OXXO*****OXXO***********</p>

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आदर्श-प्रश्नपत्रम्

संस्कृतम् (केन्द्रिकम्) कोड् सङ्ख्या 322

कक्षा – द्वादशी

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समयः – होरात्रयम्	अङ्कयोजना उत्तरसङ्केताश्च	पूर्णाङ्काः – 80

अवधातव्यम् -

1. अङ्कयोजनायां प्रदत्तानि उत्तराणि निदर्शात्मकानि सन्ति। प्रदत्तानि उत्तराणि अतिरिच्यापि सन्दर्भानुसारम् अन्यानि उत्तराणि भवितुम् अर्हन्ति।

2. **आन्तरिकविकल्पात्मकेषु प्रश्नेषु यद्यपि स्पष्टतया निर्देशः दत्तः अस्ति यत् केवलं प्रश्नद्वयम् अथवा प्रश्नत्रयम् इत्यादिकम् उत्तरं दातव्यं तथापि यदि छात्रः अतिरिक्त-प्रश्नानाम् उत्तराणि लिखति तर्हि छात्रहिताय निर्णयः कर्त्तव्यः।** यथा अनुवादकार्ये पञ्चवाक्यानां लेखनम् अभीष्टं परं छात्रः यदि षड् वाक्यानि लिखति तर्हि तत्र केवलं प्रथम-पञ्चवाक्यानां न अपितु यानि वाक्यानि उत्तमानि सन्ति तेषां मूल्याङ्कनं करणीयम्। **(अयं नियमः एकादश्यां कक्षायाम् अपि पालनीयः।)**

3. श्लोके नाट्यांशे वा पृष्टाः प्रश्नाः अवबोधात्मकाः सन्ति। अतः विद्यार्थिनः एतेषु प्रदत्तशब्दानां स्थाने समभाव-पर्यायवाचि-शब्दानां प्रयोगं कर्तुं शक्नुवन्ति। तदर्थम् अङ्काः देयाः। यदि विद्यार्थिनः उत्तरलेखन-समये समुचितानां विभक्तीनां वचनानां च प्रयोगं न कुर्वन्ति तर्हि अंशतः अङ्काः कर्तनीयाः न तु सम्पूर्णाङ्काः।

4. त्रुटिपूर्णवर्तन्यै व्याकरणात्मक-प्रयोगाय च अनुपाततः अङ्काः कर्तनीयाः न तु सम्पूर्णाङ्काः।

5. आंशिक-दृष्ट्या समुचितेभ्यः उत्तरेभ्यः अपि अङ्काः देयाः।

6. रचनात्मक-कार्ये वाक्यरचना प्रमुखा न तु वाक्यसौन्दर्य-तत्त्वम्। अतः आंशिकवाक्यशुद्धये अपि अङ्काः देयाः।

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खण्डः – क

अपठित – अवबोधनम् - 10 अङ्काः

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	अधोलिखितं गद्यांशं पठित्वा प्रदत्तप्रश्नानामुत्तराणि संस्कृतेन लिखत -	
1.		10
	(अ) एकपदेन उत्तरत - केवलं प्रश्नद्वयम्	1×2=2

	(i) भोजराजः
	   (ii) मीरा
	   (iii) कूडकी-ग्रामे	

	(आ) पूर्णवाक्येन उत्तरत - केवलं प्रश्नद्वयम्	2×2=4
	(i) विक्रमः मीरां हन्तुं पुष्पहारेण सह सर्पं प्रेषितवान्। अन्येद्युः तस्याः जीवनलीलां	

	समापयितुं विषपूरितं चषकं प्रेषयत्। (ii) वैधव्यकाले मीरायाः समयः विशेषतः कथाकीर्तनयोः पूजापाठयोः हरिचर्यायां च व्यतीतो भवति स्म। (iii) मीरायाः देवरः मीरां हन्तुं सर्पं विषमिश्रितं चषकं च प्रेषितवान् परं न तु सर्पः ताम् अदशत् अपि च विषमपि तस्याः कृते अमृतमिव जातं तस्मात् मीरायाः विश्वासः कृष्णभक्तौ दृढाद्दृढतरोऽभवत्।	
	(इ) अनुच्छेदस्य (द्वित्रिशब्दात्मकं) समुचितं शीर्षकं लिखत। मीरा, कृष्णभक्तमीरा, कवयित्री मीरा अन्ये अपि शीर्षका: भवितुम् अर्हन्ति।	1×1=1
	(ई) यथानिर्देशम् उत्तरत- केवलं प्रश्नत्रयम् (i) (ख) विक्रमाय (ii) (घ) रोचते स्म (iii) (ग) नानाविधैः (iv) (ख) विषम्	1×3=3

<div align="center">

खण्डः – ख

रचनात्मक–कार्यम् - 15 अङ्काः

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2.	**भवान् स्वागतः। प्लास्टिक् इत्यस्य प्रयोगः पर्यावरण-नाशकः इति विषयम् अधिकृत्य मित्रम् सञ्चितं प्रति लिखिते पत्रे रिक्तस्थानानि पूरयित्वा उत्तरपुस्तिकायां लिखत।**	½×10=5
	यूजी-01, संस्कृतिभवनम् **(i) नवदिल्लीतः** दिनाङ्क : 12 अप्रैल, 2024 प्रिय मित्र **(ii) सञ्चित** ! सस्नेहं **(iii) नमस्ते** अत्र कुशलं तत्रास्तु। ह्यः एव मम विद्यालये 'त्यज प्लास्टिक् रक्ष पर्यावरणम्' इति विषये एका गोष्ठी अभवत् । अत्रैव मया प्रथमवारं **(iv) ज्ञातं** यत् प्लास्टिक् इत्यस्य परिणामाः दूरगामिनः घातकाश्च भवन्ति। अन्यानि सर्वाणि वस्तूनि मृत्तिकायां विनश्य विलीयन्ते परं **(v) प्लास्टिक्** तु कदापि न अपक्षीयते। न इदं गलति न च विलीयते। एवं प्लास्टिक् इत्यस्य प्रयोगेण **(vi) पर्यावरणस्य** कृते महती क्षतिः भवति। परं वयं प्रातः जागरणात् आरभ्य रात्रौ निद्रापर्यन्तं प्लास्टिक् इत्यस्य विविधवस्तूनां प्रयोगं **(vii) कुर्मः**। किमधिकम् इयं लेखनी यया अहं लिखामि, अस्याः च पुनःपूरणी प्लास्टिक्-निर्मिता। कल्पयामि यदि एवमेव प्लास्टिक् इत्यस्य प्रयोगः वर्धिष्यते तर्हि किं भविष्यति ? वस्तुतः पर्यावरणस्य **(viii) रक्षणे** एव अस्माकं	

रक्षणम्। आशासे त्वमपि जागरूकः भूत्वा अन्येभ्यः अपि प्रेरणां प्रदास्यसि। गृहे (ix) पितृभ्यां मम प्रणामाः निवेदनीयाः।

भवतः अभिन्नमित्रम्

(x) स्वागतः

मञ्जूषा

कुर्मः, ज्ञातम्, प्लास्टिक्, पितृभ्याम्, सञ्चित, नवदिल्लीतः, पर्यावरणस्य, रक्षणे, नमः, स्वागतः।

3.	**मञ्जूषाप्रदत्त-पदसहायतया अधोलिखितां कथां पूरयत -**	½×10=5

एकः कश्चन महात्मा आसीत्। सः नित्यं (i) **ईशस्तुत्यां** लग्नः एकस्मिन् आश्रमे निवसति स्म। भक्ताः तं महात्मानं मेलितुम् आगच्छन्ति स्म। ते स्वसमस्याः अपि यदा कदा (ii) **महात्मानं** कथयन्ति स्म। महात्मा अपि यथासामर्थ्यं तासां समाधानं सूचयति स्म। एकदा एका वृद्धा महिला महात्मानम् आगत्य (iii) **प्रार्थितवती** यत् अयं मम पौत्रः। एषः गुडस्य अत्यधिकं सेवनं करोति। कृपया भवान् एनं बोधयतु। महात्मा अवदत् यत् एकसप्ताहाद् अनन्तरम् आगच्छतु तदा (iv) **बोधयिष्यामि**। सा पुनः एकसप्ताहाद् अनन्तरं महात्मानं (v) **पौत्रं** बोधयितुं प्रार्थितवती। महात्मा (vi) **पुनरेकदा** एकसप्ताहात् अनन्तरम् आगन्तुम् अकथयत्। महात्मनि श्रद्धावती सा पुनः उक्ते समये प्राप्तवती। अधुना महात्मा तं बालकम् अबोधयत् – वत्स! अत्यधिकं (vii) **गुडभक्षणं** योग्यं न भवति। केभ्यश्चन दिवसेभ्यः अनन्तरं सा वृद्धा महात्मानम् असूचयत् यत् तस्याः (viii) **पौत्रः** अधुना गुडभक्षणम् अत्यजत्। पुनः सा महात्मानम् अपृच्छत् यत् सः कथं वारद्वयं सप्ताहादनन्तरम् आगच्छतु इति अकथयत् यतः 'वत्स! अत्यधिकं गुडभक्षणं योग्यं न भवति।' इत्येतत् वाक्यं तु पूर्वमपि वक्तुं (ix) **शक्यते स्म**? तदा महात्मा अकथयत् यदा भवती प्रार्थितवती आसीत् तदा अहमपि बहु गुडभक्षणं करोमि स्म, अतः अन्यस्मै गुडत्यागाय वक्तुं मम अधिकारः न आसीत्। अहम् अभ्यासेन प्रयत्नपूर्वकं गुडत्यागम् अकरवम्। अतः अहं ततः परमेव बालकं बोधितवान् अपि च मम वचसः तस्मिन् प्रभावोऽपि जातः। वृद्धा अन्ये भक्ताश्च श्रद्धया (x) **नतमस्तकाः** अभवन्।

अथवा

अधोलिखितसंवादे मञ्जूषायाः सहायतया रिक्तस्थानानि पूरयन्त 1×5=5

परिधिः - आद्ये! त्वम् अद्य अल्पाहारार्थं किम् आनीतवती?

आद्या - (i) अहम् इडली-साम्भरखाद्यम् आनीतवती। उदित! त्वं किम् आनयः?

उदितः - अहम् ओदनं सूपञ्च आनीतवान्। परिधे! त्वं मध्यावकाशे भक्षणाय किम् आनयः?

परिधिः - (ii) मम माता मह्यं रोटिकां आलुकस्य शाकं च दत्तवती। परम् अहं तद् न इच्छामि।

मीशा - मम पार्श्वे आलुकस्य चिप्स् शीतलपेयं चास्ति। (iii) **किं भवत्यै शीतलपेयं रोचते?**

परिधिः - आम्, मह्यं शीतलपेयं रोचते।

अभ्युदयः - (iv) किं विस्मृतं त्वया यत् शीतलपेयं, चिप्सादिकानि जङ्कभोज्यवस्तूनि स्वास्थ्याय हितकराणि

	न भवन्ति।	
	परिधिः - यद् वस्तु अस्मभ्यं न रोचते, तत् वयं कथं खादेम?	
	अभ्युदयः - (v) सर्वदा तथ्यमिदं स्मरणीयं यत् शुद्धं सात्त्विकं पौष्टिकं च भोजनमेव स्वास्थ्यरक्षकं भवति।	
	परिधिः - भवता सत्यं कथितम्। अग्रे वयं यत् स्वास्थ्याय हितकरं भवेत् तदेव आनेष्यामः।	
	रचनात्मक-कार्ये वाक्यरचना प्रमुखा। अत्र अन्यानि अपि उत्तराणि भवितुं शक्नुवन्ति।	
4.	निम्नलिखितवाक्येषु केषाञ्चन पञ्चवाक्यानां संस्कृतेन अनुवादं कुरत –	1×5=5
	1. वैभवः उच्चैः हसति।	
	2. यूयं किं पठथ?	
	3. बालकाः कथां श्रोष्यन्ति।	
	4. युवाम् उच्चैः मा वदतम्।	
	5. कृषकाः क्षेत्रं/क्षेत्राणि अगच्छन्/गतवन्तः।	
	6. अधुना आवां शयनं कुर्याव। / अधुना आवाभ्यां शयनं करणीयम्/कर्त्तव्यम्।	

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खण्डः - ग

अनुप्रयुक्तव्याकरणम्   20 अङ्काः

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5.	अधोलिखितवाक्येषु रेखाङ्कितपदानां सन्धिं सन्धिच्छेदं वा कृत्वा लिखत- (केवलं प्रश्नषट्कम्)	1×6=6
	(i) धर्मान्ति	
	(ii) अत्राप्यलोभः	
	(iii) मनुः + नाम	
	(iv) उल्लङ्घ्य	
	(v) तपः + तेपे	
	(vi) नैकेन	
	(vii) खलु + एतत्	
6.	अधोलिखित-वाक्येषु रेखाङ्कितपदानां समुचितं समस्तपदं विग्रहवाक्यं वा प्रदत्तविकल्पेभ्यः चित्वा लिखत – (केवलं प्रश्नपञ्चकम्)	1×5=5
	(i) (ग) न अश्नन्	
	(ii) (क) पतिः च पत्नी च	
	(iii) (ग) सापराधम्	
	(iv) (क) पाण्डित्यसम्भृतमतिः	
	(v) (ख) दीर्घेण प्रयासेन	
	(vi) (क) प्राप्तं परिचयपत्रं यैः ते	

7.	अधोलिखित-वाक्येषु रेखाङ्कितपदेषु प्रकृतिप्रत्ययौ संयोज्य विभज्य वा समुचितं रूपं प्रदत्तविकल्पेभ्यः चिनुत – (केवलं प्रश्नषट्कम्)	1×6=6
	(i) (क) प्र+मद्+तव्यत्	
	(ii) (ख) व्यवस्थित+टाप्	
	(iii) (ग) प्र+सू+क्त	
	(iv) (ख) नयन्	
	(v) (ग) गुणी	
	(vi) (क) कथितवान्	
	(vii) (घ) प्र+आप्+क्त	
8.	कोष्ठकप्रदत्तपदैः सह समुचितां विभक्तिं प्रयुज्य रिक्तस्थानपूर्तिं कृत्वा लिखत – (केवलं प्रश्नत्रयम्)	1×3=3
	(i) (क) फले	
	(ii) (ग) प्रज्ञया	
	(iii) (ख) मुञ्जाय	
	(iv) (घ) स्वाध्यायात्	

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खण्डः – घ भाग - I
पठितांशावबोधनम् 25 अङ्काः

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9.	अधोलिखितं गद्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत -	5
	अ. एकपदेन उत्तरत - (केवलं प्रश्नद्वयम्)	½×2=1
	(क) श्मशानभूमौ	
	(ख) कापालिकः	
	(ग) शिवप्रसादेन	
	आ. पूर्णवाक्येन उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) वत्सराजः बुद्धिसागरं नत्वा शनैः शनैः प्राह - तात! मया भोजराजो रक्षित एवास्ति।	
	(ख) 'योगिना भोजो जीवितः इति कथा लोकेषु प्रसृता।	
	(ग) मुञ्जः कापालिकं प्रार्थयत् - हे योगीन्द्र! मया हतस्य पुत्रस्य प्राणदानेन मां रक्षेति।	
	इ. यथानिर्देशम् उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) वत्सराजः	
	(ख) हतस्य	
	(ग) वह्निः	

10.	अधोलिखितं पद्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत -	5
	अ. एकपदेन उत्तरत - (केवलं प्रश्नद्वयम्)	½×2=1
	(क) कांस्यम् (ख) अजस्रम् (ग) मितप्रभाषी	
	आ. पूर्णवाक्येन उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) अल्पज्ञः पुरुषः निरन्तरम्/अजस्रं प्रलापं करोति। (ख) सुवर्णं कांस्यवत् नादं न करोति। (ग) अल्पज्ञः अजस्रं प्रलपति परं पण्डितः मितप्रभाषी भवति।	
	इ. यथानिर्देशम् उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) अजस्रम् (ख) पुरुषः (ग) अतितराम्	
11.	अधोलिखितं नाट्यांशं पठित्वा तदाधारितान् प्रश्नान् यथानिर्देशं संस्कृतेन उत्तरत -	5
	अ. एकपदेन उत्तरत - (केवलं प्रश्नद्वयम्)	½×2=1
	(क) शिशुभ्यः (ख) अभिरुचिम् (ग) जीवनयात्रायाम्	
	आ. पूर्णवाक्येन उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) कुण्डला विहस्य मदालसां कथयति - यदि त्वं शीघ्रमेव पतिगृहं गमिष्यसि तदा एकाकिनी भविष्यामि। (ख) मदालसा जीवनपथे चलितुं स्वयं समर्था अस्ति। (ग) सङ्गीतसाहित्यमाध्यमेन ब्रह्मविद्यां सरसां विधाय मदालसा बहुभ्यः शिशुभ्यः शिक्षणं प्रदास्यति।	
	इ. यथानिर्देशम् उत्तरत - (केवलं प्रश्नद्वयम्)	1×2=2
	(क) उपायः (ख) त्वम् (ग) विहस्य	
12.	अधोलिखितस्य पद्यस्य भावार्थं मञ्जूषाप्रदत्तपदैः पूरयित्वा पुनः लिखत –	1×3=3
	भावार्थः – (i) सहस्रैः	

	(ii) सज्जनताम्	
	(iii) निमग्नः	
	अथवा	
	प्रदत्त-भावार्थत्रयात् शुद्धं भावार्थं चित्वा लिखत-	1×3=3
	(क) (i) मृत्योः अनन्तरम् एषा पृथिवी केनापि सह न गतवती निश्चितमेव त्वया सह गमिष्यति। (ख) (ii) गुणवता पुत्रेण एव माता निर्भया भवति। (ग) (iii) शोकस्य समये लक्ष्मणः युद्धाय तत्परः अस्ति।	
13.	अधोलिखित- श्लोकस्य प्रदत्ते अन्वये रिक्तस्थानपूर्तिं कुरुत –	1×3=3
	अन्वयः – (i) पार्थिवस्य (ii) नवनृपतिविमर्शे (iii) भ्रातरः	
14.	'क' स्तम्भस्य वाक्यांशस्य 'ख' स्तम्भस्य वाक्यांशेन सह मेलनं कुरुत -	½×4=2
	'क' स्तम्भः **'ख' स्तम्भः** (i) ज्ञाने मौनं क्षमा शक्तौ (ग) त्यागे श्लाघाविपर्ययः। (ii) तेजः क्षमा धृतिः (क) शौचमद्रोहो नातिमानिता। (iii) आह्लादितं कुलं सर्वम् (घ) यथा चन्द्रेण शर्वरी (iv) यशसे विजिगीषूणाम् (ख) प्रजायै गृहमेधिनाम्	
15.	अधोलिखितेषु वाक्येषु रेखाङ्कितपदानां प्रसङ्गानुसारं शुद्धम् उत्तरं चित्वा लिखत –	½×4=2
	(i) ऐश्वर्याय (ii) लक्ष्मणेन (iii) वार्तालापः (iv) श्रीरामः	
	खण्डः – घ भागः - ii सामान्यसंस्कृतसाहित्यपरिचयः 10 अङ्काः	
16.	अधोलिखित-प्रश्नानाम् उत्तराणि लिखत- (केवलं प्रश्नत्रयम्)	1×3=3
	(i) श्रीमद्भगवद्गीता (ii) अनुशासनम् (iii) दौवारिकस्य निष्ठा (iv) कालिदासः	

17.	मञ्जूषायाः समुचितं पदं चित्वा रिक्तस्थानानि पूरयत – (केवलं प्रश्नत्रयम्)	1×3=3
	(i) महाकाव्यम्	
	(ii) अर्थगौरवम्	
	(iii) पदलालित्यम्	
	(iv) आख्यायिका	
18.	समुचितं मेलयाम।	1×4=4
	भागः - क भागः - ख	
	(i) उरुभङ्गनाटकम् (क) भासः	
	(ii) मृच्छकटिकम् (ख) शूद्रकः	
	(iii) मुद्राराक्षसम् (ग) सप्ताङ्कात्मकं नाटकम्	
	(iv) मालतीमाधवम् (घ) भवभूतेः कृतिः	

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PHYSICAL EDUCATION (048)
Sample Paper
Class XII (2024-25)

TIME ALLOWED: 3 HRS   MAX. MARKS: 70
GENERAL INSTRUCTIONS:

1) The question paper consists of 5 sections and 37 Questions.
2) Section A consists of question 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.
3) Sections B consist of questions 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
4) Sections C consist of Question 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
5) Sections D consist of Question 31-33 carrying 4 marks each and are case studies. There is internal choice available.
6) Section E consists of Question 34-37 carrying 5 marks each and are short answer types and should not exceed 200-300 words. Attempt any 3.

(SECTION -A)

Q1. How many total matches will be played in a knock out fixture of 19 teams   1
   A. 18   B. 17   C. 20   D. 16

Q2. Given below are the two statements labeled Assertion (A) and Reason (R). Read   1
   the statements and choose the appropriate option from the options given below:
   Assertion: The knock out tournament is an elimination tournament
   Reason: In knock out tournament, winner of each match advances in the tournament and the loser gets eliminated.
   In the context of the above two statements, which one of the following is correct?
   A. Both (A) and (R) are true and (R) is the correct explanation of (A).
   B. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
   C. (A) is true, but (R) is false.
   D. (A) is false, but (R) is true

Q3. Match the following: 1

List I	List II
I Knock Knee	1 Increase exaggeration of backward curve
II Kyphosis	2 Wide gap between the knees when standing with feet together
III Lordosis	3 Knees touch each other in normal standing position
IV Bow legs	4 Inward curvature of the spine

   A. I-3, II-1, III-4, IV-2
   B. I-1, II-3, III-4, IV-2
   C. I-4, II-2, III-1, IV-3
   D. I-2, II-3, III-4, IV-1

Q4. For developing muscles, which nutrient should be increase in diet
    A. Vitamins   C. Minerals
    B. Protein   D. Carbohydrates

Q5. Identify the asana: 1

    A.   Paschimottanasana
    B.   Halasana
    C.   Vajrasana
    D.   Dhanurasana

Q6. Which asana is pose like cobra?   1
    A.   Bhujangasana
    B.   Dhanurasana
    C.   Vajrasana
    D.   Ardhmatsyendrasana

Q7. Deaflympics Games was first organized in the year…………   1
    A. 1896   B. 1960   C. 1924   D. 1951

Q8. Menarche is defined as the: 1
    A. Ending of menstrual period of women
    B. Beginning of menstrual period in women
    C. Time of pregnancy
    D. Missing of menstrual cycle

Q9. Which of the following are fat soluble vitamins   1
    A. Vitamin d & k
    B. Vitamin b & c
    C. Vitamin a & e
    D. Both option a & c

Q10. Match the following: 1

I Plate Tapping Test	1. Upper body strength boys
II Push up	2. Reaction time
III Partial Curl up	3. Upper body strength girls
IV Modified pushup	4. Abdominal strength

    A. I-2, II-1, III-4, IV-3
    B. I-2, II-3, III-1, IV-4
    C. I-1, II-3, III-2, IV-4
    D. I-2, II-3, III-4, IV-1

Q11. Which of the following is a physiological factor determining flexibility?   1
    A. Bone density
    B. Joint structure
    C. Cardiac output
    D. Tidal Volume

Q12. The ability to tolerate higher concentration of ……………. Can help in improving 1
endurance performance.
    A. Lactic acid   C. acetic acid
    B. Hydrochloric acid   D. Sulphuric acid

Q13. If a ball is hit and it is stop by gravitational force, this is an example of which   1
    law of Motion.
    A. Law of Inertia
    B. Law of acceleration
    C. Law of action and reaction
    D. Both a & b

Q14. In which of the following sport friction plays the least important role.   1
    A. Car race
    B. Football
    C. Ice skating
    D. Hockey

Q15. Instrumental aggression is related to   1
    A. Accepting defeat
    B. Achieving goal
    C. Only performance
    D. Hurting someone to gain something

Q16. Given below are the two statements labeled Assertion (A) and Reason (R).   1
   Assertion: Aggression is part of human behavior and is necessary for an individual to
        live and struggle for higher achievements
  Reason: Aggression is inevitable and inseparable in sport activities
In the context of the above two statements, which one of the following is correct?
   A. Both (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true, but (R) is not the correct explanation of (A).

C. (A) is true, but (R) is false.

D. (A) is false, but (R) is true

Q17. Which of these is a type of endurance?   1
   A. Static   C. Dynamic
   B. Specific   D. Relative

Q18. Which type of coordinative ability is required in game like judo and wrestling   1
   B. Orientation ability
   C. Coupling ability
   D. Adaptation ability
   E. Differentiation ability

(SECTION B- Attempt any 5)

Q19. Enlist any two-exercise guideline by WHO for different age groups.   2

Q20. How we can say that protein is an essential component of diet?   2

Q21. Mention the test performed on 9 to 18 yrs. of age group in SAI Khelo

   India fitness test and explain any one?   1+1

Q22. List down the types of bone injuries   .   2

Q23. What do you understand by the term goal setting   2

Q24. Define Flexibility and list down its type.   1+1

(SECTION C- Attempt any 5)

Q25. Specify the purpose of specific sports programme organised for community services.   3

Q26. What are the health problem face by a woman due to female athlete triad in its sports and athletic performance.   3

Q27. Write in detail the aims and objectives of special Olympic Bharat.   3

Q28. Differentiate between nutritive and nonnutritive components of a diet on the basis of their functions.   1.5+1.5

Q29. With the help of suitable sports example explain the application of Newtons   3 third law in sports.

Q30. How we can enhance the performance with the help of self-talk and self-esteem.   1.5+1.5

(SECTION D)

Administrative director

↓

Executive committee

↓

Organising committee for games/sports

| Boarding and lodging committee | ← | → | Publicity committee |

| Reception committee | ← | → | Decoration and ceremony committee |

| Transportation committee | ← | → | Grounds and equipment committee |

Q31.

I. Choose the function of boarding committee   1
   A. To take teams to the venue of match
   B. To provide them meals
   C. To take care of their stay
   D. To arrange opening ceremony

II. What is the work of ceremony committee   1
   A. To take teams to the venue of match
   B. To provide them meals
   C. To take care of their stay
   D. To arrange opening ceremony

III. Ground and equipment committee should not perform   1
   A. To arrange teams match venues
   B. To provide them meals
   C. To take care of proper officiating
   D. To make fixtures

IV. Why committees are required?
   A. To organize the event is perfect manner
   B. To distribute the work
   C. To make the best use of resources
   D. All of the above   1

(Questions for Visually impaired)
Ram is a secretary of state basketball association. He has given the responsibility to organize a sub-junior national tournament. He wants to organize the event at large scale and start distribution the work in various committees. He delegates the duties to different individual with authority and responsibility.
(Answer the following questions on the basis of above paragraph)
   I. Which committee is responsible to make the event awareness: -
      A. Publicity Committee   C. Registration committee
      B. Hospitality   D. Transports

5

II. ………………. is the process of identifying and grouping the work to be performed.
    A. Planning   C. Organising
    B. Directing   D. Controlling

  III. The reception committee for the tournament is responsible for _____
    A. Welcoming the participants
    B. Arranging accommodation and meals for the participants
    C. Proper upkeep of the venues
    D. Welcoming the chief guest and spectators at the opening and closing ceremony

IV. If the responsibility of a committee is to fix venue, date and timing of the sports events,
    it is a _____
    A. Post meeting committee
    B. Pre meet committee
    C. During meet committee
    D. All the above

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Q32.
      I. The first paralympics was organise in
      A.1960   C. 1965
      B. 1970   D. 1985

      II. Special education is a branch of education that deals with
          A. . Educating children in special schools
          B. Instructions designing for students with special needs
          C. To provide opportunity of special education
          D. More than one of the above

      III. Why is it called the Paralympics?
          A. The first competition was held in Paraguay
          B. It was originally for paramilitary soldiers injured in WW2
          C. The event runs parallel with the Olympics
          D. It's an event for paraplegics

      IV. What is the motto of the Paralympic Games
          A. Spirit in motion
          B. Citius, Altius, Fortius"
          C. "Faster, Higher, Stronger
          D. Diversity, Equality, Inclusion"

(Question for Visually Impared)

Read the paragraph and answer the following question

The Paralympic Games are a major international multi-sport event involving athletes with a range of physical disabilities, including impaired muscle power, impaired passive range of movement, limb deficiency, leg length difference, short stature, hypertonia, ataxia, athetosis, vision impairment, and intellectual impairment.

Dr. Ludwig Guttmann kownn as father of paralympic organized the first official Paralympic Games in Rome featuring 400 athletes from 23 countries.

The Paralympics have grown significantly over the years, now attracting thousands of athletes from over 100 countries. The Paralympic movement has played a vital role in challenging societal perceptions of disability and in promoting the rights and inclusion of people with disabilities worldwide

I. What is the primary focus of the Paralympic Games?
     A. To promote physical fitness among children
     B. To involve athletes with a range of physical disabilities in competitive sports
     C. To honor the history of the Olympic Games
     D. To raise funds for sports organizations

II. Who organized the first event that eventually led to the creation of the Paralympic Games?
     A. Pierre de Coubertin   C. Lord Zeus
     B. Dr. Ludwig Guttmann   D. Norabji Tata

III. In which year were the first official Paralympic Games held?
     A. 1948   C. 1960
     B. 1952   D. 1964

IV. Where were the first official Paralympic Games held?
     A. Tokyo, Japan   C. Rome, Italy
     B. London, United Kingdom   D. Sydney, Australia

Q33.
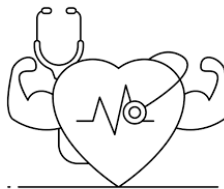
I. What is the primary effect of exercise on cardio respiratory system.   1
     A. Decreased heart rate
     B. Increased stroke volume

       C. Decreased lung capacity

       D. Decreased blood pressure

II.   What is stroke volume   1

    A.   The volume of blood ejected by the heart per minute

    B.   The volume of blood ejected by the heart per beat

    C.   The volume of blood in the ventricles at the end of diastole

    D.   The volume of blood pumped by the heart during exercise

III.   Cardiac output is   1

    A.   The volume of blood ejected by the heart per minute

    B.   The volume of blood ejected by the heart per beat

    C.   The volume of blood in the ventricles at the end of diastole

    D.   The volume of blood pumped by the heart during exercise

IV.   Blood pressure is   1

    A.   The volume of blood ejected by the heart per minute

    B.   The force exerted by blood against the walls of arteries

    C.   The rate of blood flow through the veins

    D.   The amount of oxygen carried by red blood cells

(Question for blind)

Ramesh is an athlete of XYZ school. He is use to do 100m event for his school. He used to do hard work throughout the year to get his best performance. One day he got injury in winter season due to improper warming-up. He has been given first -aid before sent to hospital.

    I. Sprain is an injury of ….

      A. Ligament   C. Bone

      B. Muscle   D. Joint

   II. In PRICE treatment I stands for

      A. Iceing   C. Incision

      B. Incline   D. Irritation

   III.   Abrasion is a

    A. Type of fracture   C. Soft tissue injury

    B. Joint dislocation   D. Internal injury

   IV. Why warming up is necessary

    A. To avoid injuries   C. To increase body temperature

    B. To increase pulse rate   D. All the above

(SECTION E- Attempt any 3)

Q34. List down any four asanas used for prevention of Hypertension. Explain the procedure, benefits and contraindicate of any one of them with help of a stick diagram.   1+4

Q35. Discuss the purpose of Rikli & Jones fitness test and explain procedure of any two test batteries in detail.   5

Q36.Define strength and differentiate between Isometric, Iso-tonic and Iso-kinetic exercises.

1+4

Q37.What are the various types of friction? With the help of suitable example explain why friction is necessary in sports.   2+3

PHYSICAL EDUCATION (048)
Class XII
2024-25
Answer Key

TIME ALLOWED: 3 HRS   **MAX. MARKS: 70**

Q No.	Answer	Marks
1.	A. 18	1
2.	A. Both (A) and (R) are true and (R) is the correct explanation of (A).	1
3	A. I-3, II-1, III-4, IV-2	1
4	B. Protein	1
5	B. Halasana	1
6	A. Bhujangasana	1
7	C. 1924	1
8	B. Beginning of menstrual period in women	1
9	D. both a and c	
10	A. I-2, II-1, III-4, IV-3	1
11	B. Joint structure	1
12	A. Lactic acid	1
13	A law of Inertia	1
14	A. Ice Skating	
15	A. Achieving goal	1
16	A. Both (A) and (R) are true and (R) is the correct explanation of (A).	1
17	A. specific	1
18	A. Adaptation ability	1
	Section B	
19	Q. Enlist different types of postural deformities. a. Kyphosis b. Lordosis c. Scoliosis	½*4=2

	d. Knock-Knee e. Flat Foot f. Bow legs (any four)	
Q20	How we can say that protein is an essential component of diet? • Protein is essential component of diet because protein is known as building block of life and it increase the strength of muscle fibers, repair and maintenance of body tissue and also connected with immune mechanism of the body.	2
Q21	Mention the test performed on 9 to 18 yrs. of age group in SAI KheloIndia fitness test explain any one? a. Body Composition (BMI) b. Strength . Abdominal (Partial Curl-up) Muscular Endurance (Push Ups for Boys, Modified Push Ups for Girls) c. Flexibility (Sit and Reach Test) d. Cardiovascular Endurance (600 Meter Run/Walk) e. Speed (50 mt. Dash)	½ *4 =2
Q22	Q. List down the types of bone injuries a. Stress fracture b. Green stick fracture c. Comminuted fracture. d. Transverse Fracture e. Impacted fractures	½ *4 =2
Q23.	What do you understand by the term goal setting? A. Goal setting is one of the best motivational strategies. It improves performance by directing attention, increasing effort and persistenc. These goals can be short-term or long-term and are designed to help athletes focus their efforts, stay motivated, track progress, and ultimately improve their performance.	2
Q24.	Define Flexibility and list down its type.	

	A. It is the ability which helps to do the movements with greater amplitude or with a great range of motion or we can say that flexibility refers to the range of movement in a joint or series of joints, and length in muscles that cross the joints to induce a bending movement or motion. Type of Flexibility a. active & passive	1+1
	Section C	
Q25	Specify the purpose of specific sports programme organised for community services. A. These days it is very common that specific sports programmes are organised to make people aware regarding particular cause or any particular issue. These programmes are not related to competitions only, but it has special reason. They create awareness related to a disease like AIDS, Swine Flu, collecting funds for special cause like flood, earth quakes etc.	3
Q26	What are the health problem face by a woman due to female athlete triad in its sports and athletic performance. A. The female athlete triad is a problem face by a women consist of Eating Disorder, Osteoporosis and Amenorrhea. The following problem are faced by a woman due to the female athlete triad in sports performance: - a. Increased risk of injury b. Feeling tired c. Shortness of breath d. Stomach inflammation e. Muscle weakness f. Weak bones g. Hormonal imbalance h. Psychological effects.	½*6 =3
Q27.	Write in detail the aims and objectives of paralympic committee A. The Paralympic games are a multi – sports event for athletes with physical, mental and sensorial disabilities. This includes mobility, disabilities, amputees, visual disabilities. The main objective of Paralympics are as follows: -	3

	a. Promote Para sport worldwide, without unlawful discrimination on the grounds of disability, race, skin colour, national, ethnic or social origin, age, sex, gender, sexual orientation, language, political or other opinion, religion or other beliefs, circumstances of birth, or other unlawful ground. b. Support and encourage educational and cultural activities and exchanges that contribute to the development and promotion of the Paralympic Movement, enhance awareness of disability, and drive social inclusion.	
Q28.	Differentiate between nutritive and nonnutritive components of a diet o | Nutritive Component	Non- Nutritive Component
---	---
Nutritive components of food are those elements that provide a considerable quantity of energy to the system, such as protein, carbohydrates, and fats, all of which are essential to the body.	Non-nutritive components of the diet are those components that do not have any nutritional value but are nonetheless necessary for the body in tiny quantities.
Provide Energy	Provide flavour and texture
Support growth and repair	Acts as food addictive
Regulate metabolism	Provide antioxidant		1.5+1.5
Q29.	With the help of suitable sports example explain the application of Newtons third law in sports. A. Newton's third law states that for every action, there is an equal and opposite reaction. In swimming, Newton's third law is evident in the propulsion generated by a swimmer's arm strokes against the water. When a swimmer pulls their arm through the water with force (action), the water exerts an equal and opposite force backward on the swimmer's hand (reaction). This reaction force propels the swimmer forward through the water.	3
Q30.	How we can enhance the performance with the help of self-talk and self-esteem. A. Self-talk and self-esteem play significant roles in enhancing sports performance. Motivational self-talks are necessary and productive. It boosts performance by helping you to build confidence, enhance your belief in your ability to perform. It	1.5+1.5

	also athletes maintain a positive mindset, enhance their confidence, and improve their performance. Self-esteem is also crucial in sports performance. It helps in taking effective decision, Educed anxiety & stress. Individuals with high self-esteem are better equipped to bounce back from setbacks and failures.	
Q31.	a. To take care of their stay	1
	d. To arrange opening ceremony	1
	a. To provide them meals	1
	Committees are important for proper planning, organization, control during the tournament. Appropriate path and guidelines are provided by these committees during the tournament. Through committees all understand their work duties and responsibilities no body interferes in any others work. **(Question for blind)** There should be an organizing committee which should be responsible for the successful and smooth conduct of the sports competitions **Committees required pre event:-** Publicity Committee Committee for the ground and equipment Committee for Accommodation and Sitting Arrangements Committee for Entries **Committees required during event:-** Committee for First-Aid: Committee for Refreshment Committee for officials: Committee for Information and announcement **Committees required post event:-** Committee for closing ceremony Evaluation Record Maintenance	1
Q32.	A) i. 1960	1
	B) ii. Instructions designing for students with special needs	1
	C) iii The event runs parallel with the Olympics	1
	D) i. Spirit in motion	1
	(Question for Blind)	

	Inclusion in physical education refers to the students with disabilities to participate in all the activities. It means that these students get equal chance to participate in all activities, and they too learn the same curriculum just like other students. It helps in increases social skills of students with disabilities. Inclusion is needed to increase motor skills of students with disabilities. A disabled student gets equal chance to participate in age-appropriate activities so, it increases the confidence level.	
Q33	i. Decreased heart rate	1
	ii. The volume of blood ejected by the heart per beat	1
	i. The volume of blood ejected by the heart per minute	1
	ii. The force exerted by blood against the walls of arteries	1
	(Question for Blind) Long term effect of exercise on cardio respiratory system are: **Increase in heart size:-** Regular exercise leads to increase in size and strength of heart muscles. The heart wall grow stronger and thicker. **Stroke volume increases at rest:-** Resting heart rate is able to slow down , because the heart is now trained to pump a larger quantity of blood with every beat. **Faster recovery rate:-** Regular exercise leads to faster recovery rate. An athletes heart rate becomes normal earlier compared to a beginner. Rate of respiration also becomes normal quickly. Thus the recovery becomes fast. **Short Term effect** **Short Term / Immediate Effect** **Increase in heart rate**:- On of the short term effect is increase in heart rate, when we doing exercise the heart rate will continue to rise from its normal beat in direct proportion to the intensity of exercise until maximum heart rate is achieved. **Cardiac Output:-** It is the amount of blood the heart pumps in a period of one minute. It also increase during strenuous exercise. **Blood Pressure:-** The pressure exerted by blood on the wall of heart, The upper range is called systolic and bottom range is called diastolic. Regular exercise also have effect on our blood pressure, generally there is change in systolic pressure but the diastolic pressure usually remains unchanged during intensive exercise	
	Section E	

Q34.	List down any four asanas used for prevention of Hypertension. Explain the procedure, benefits and contraindicate of any one of them with help of a stick diagram.
	
	    A. Blood pressure is the force of your blood pushing against the walls of your arteries. Each time your heart beats, it pumps blood into the arteries.
	
	       The four asana used for the prevention of hypertension are as follows:-
	
	    • Tadasana,
	
	    • Katichakransan,
		2+3

- Uttanpadasana,

- Ardha Halasana

Procedure benefit and contraindication of Tadasana:

Tadasana

The word Tada in Sanskrit means 'palm tree'. This asana is called tadasana because in this asana the person stands straight like a aim tree stretching his whole body upwards.

Procedure:

To perform Tadasana the following steps should be performed:

1. Stand erect, feet together, hands by the side of the thighs. Keep the back straight and look in front.

2. Stretch the arms upward; keep them straight and parallel to each other in vertical position, with the palms facing each other.

3. Slowly, raise the heels as much as you can and stand on toes. Stretch body up as much as possible.

4. Maintain the position for 5-10 seconds comfortably.

5. To come back, bring the heels on the floor first. Slowly bring down the hands by side of the thighs and relax.

Benefits:

1. It gives stretch to whole body muscles.

2. It helps in strengthening thighs, knees and ankles.

3. By doing this asana regularly, children can increase their height.

4. It helps to remove laziness and lethargy.

Precautions

1. The inner upper arms should touch the respective ears.

2. Stretch the arms and fingers in full capacity.

3. Keep the head, neck and the body in one straight line.

4. Avoid bending forward or backward.

Contraindications

1. Those having complaints of vertigo should avoid practicing this asana.

Q35.	Discuss the purpose of Rikli & Jones fitness test and explain procedure of any two test batteries in detail.	2+3

A. Even in old age, everybody wants to be able to continue to do what he wants, without pain, for as long as possible. It requires proper fitness during such age. In the beginning, there were not enough tests to assess the functional fitness. Recognizing the need for a tool to evaluate the functional fitness performance of older adults, Dr. Roberta Rikli and Dr. Jessie Jones developed the senior fitness test at Fullerton University. This test is also known as Fullerton Functional Test of senior citizens. The test is based on a functional fitness framework, which points out that being able to perform everyday activities.

1. Chair stand test for lower body 1. Lower body strength, leg strength & strength Endurance

2. Arm curl test for upper body 2. The upper body strength, arm flexor, strength, strength & endurance

3. Chair sit & reach test for lower 3. The lower back flexibility

body flexibility

4. Back-scratch test for upper body 4. The upper body flexibility of the body flexibility & range of motion of the shoulders.

5. Eight foot up & Go test for agility 5. The motor agility, speed & balance

6. Six minute walk test for 6. Cardio-vascular endurance & recovery

Chair Stand Test for Lower Body Strength

Purpose: The purpose of the Chair-Stand is to measure the strength of lower body of adults over 60 years of age. Lower body strength is important for activities such as getting out of a chair, on the bus, out of the car, and rising up from a kneeling position in the house or garden. The strength of your lower body can directly affect the ease with which you perform the activities you do every day.

Equipment required: A straight back or folding chair without arm rests (seat 17 inches/44 cm high), stopwatch.

Procedure:

1) Place the chair against a wall where it will be stable.

2) Sit in the middle of the chair with your feet flat on the floor, shoulder width apart, back straight.

3) Cross your arms at the wrist and place them close to the chest.

4) On the command 'go' you will rise up to a full stand

and sit again as many times as you can during the 30 second interval.

5) Count the total number of complete chair stands (up and down equals one stand). If the subject has completed a full stand from the sitting position when the time is elapsed, the final stand is counted

in the total.

Scoring: The score is the number of completed chair stands in 30 seconds. Below is a table showing the recommended ranges for this test based on age groups.

Arm Curl (Bicep) Test for Upper Body Strength

Purpose: This test measures upper body strength and endurance.

Equipment required: 5-pound weight (women), 8-pound weight (for men). A chair without arm rests, stopwatch.

Procedure:

1) The subject sits on the chair holding the weight in the hand using a suitcase grip (palm facing towards the body).

2) This test is conducted on the dominant arm side (or

stronger side).

3) On the command 'go' do as many curls as you can in the allotted 30 second time period.

4) Do not swing the weight.

5) If you have started raising the weight again and are over

halfway up when time is called, you may count that curl.

Scoring: The score is the total number of controlled arm curls

performed in 30 seconds. Below is a table showing some

recommended ranges for this test based on age groups.

| Q36. | Define strength and differentiate between Isometric, Iso-tonic and Iso-kinetic exercises. | |

Strength is the ability of muscles to overcome the resistance. Strength is necessary for the performance of physical activities, whether it is a physical activity associated with daily living.	1+4

Barrow and McGee have defined "Strength as, 'The Capacity of the whole body or any of it's ports to exert force.'

Isometric Exercises	Isotonic Exercises
(i) Movements of exercising body parts or object are not visible to third person.	(i) Movements of exercising body parts are visible to third person.
(ii) Length of exercising muscles doesn't change.	(ii) Length of exercising muscles change.
(iii) Less muscular endurance is developed.	(iii) More muscular endurance is develo-ped.
(iv) These exercises can be performed at any place.	(iv) These require specific place.
(v) These develop strength at one place.	(v) These develop uniform strength.
(vi) Isometric exercises develop strength and less flexibility.	(vi) Isotonic exercises develop strength along with flexibility.
(vii) Isometric exercises create boredom.	(vii) Isotonic exercises are interesting because they are self testing.
(viii) Recovery from muscular fatigue is slow.	(viii) Recovery from muscular fatigue is faster.
(ix) e.g. Exercise by pushing a wall.	(ix) e.g. Exercise with light weights.

Isokinetic Exercises

(i) This involves movement but maintains a constant speed.

(ii) Isokinetic generally involves muscle contraction against an electronic resistance and is specific to a particular sport.

(iii) It develops explosive strength as well as strength endurance.

(iv) Iso-same, kinetic-speed. Isokinetic exercises are done with machine that regulates movement, velocity and resistance.

(v) Excellent development of power.

(vi) Better development of speed as compared to Isotonic.

(vii) Examples are
    (a) Running on Treadmill with prefixed speed of steps,
    (b) Bicycling with a set of fixed number of revolutions per minute etc.

Q37	What are the various types of friction? With the help of suitable example explain why friction is necessary in sports	2+3
	A. Friction is a force which oppose efforts to slide or roll one body over another. Without friction it would be impossible to walk or run but on the other hand it increases the difficulty of moving.	
	The amount of friction between one surface and another depends upon the nature of the surface and forces pressing them together generally speaking smooth surface have less friction than rough.	
	Types of Friction:-	
	• Static Friction:- is the opposing force which acts between two surface in which one tends to move over the other	
	• Dynamic Friction:- which acts between two surfaces in which one is actually moving over the other it may be two types.	
	– Sliding	
	– Rolling	
	Friction is both helpful in sports: Friction is Necessary: Nothing would be able to move without friction. Friction is how things accelerate. Without friction we would not be able to walk we would just be slipping. Without friction we cannot give better performance in sports. Examples: athletes use spikes and footballers use studs to have appropriate friction while they run fast.A Gymnast uses lime powder on his/her palms to perform many activities like horizontal bar uneven bar Roman Rings. In Badminton players are usually seen to rub their sole of shoes with lime before going to tlhe wooden court. It is done to provide better grip on the floor so that one can move safely	

SUBJECT – APPLIED ART - COMMERCIAL ART (CODE-052)
SAMPLE QUESTION PAPER
CLASS XII (2024-25)

One Theory Paper – 2 hrs   **Total Marks – 30**

General Instructions

- Section-A

    Attempt all Questions (Each part will carry 1 mark)

- Section-B

    Attempt all Questions (Each Question will carry 2 Marks)

- Section-C

    Attempt any two Questions (Each Question will carry 6 Marks)

S.No.	SECTION-A	Marks
Q1.	**Select the right answer from the given options:**	
(A)	In Pahari School of Miniature Paintings, who among the following has been depicted as hero in love scenes from your course of study? 1. Ram 2. Lakshman 3. Krishna 4. Balram	1
(B)	**Assertion (A)**: 'Radha Bani Thani' is delicately holding the lotus buds in one hand and gracefully holding her transparent Odhani from the other. **Reason(R)**: She stands elegantly, confidently, and firmly, as an epitome of an empowered women.	1

	1. Both A and R are true and R is the correct explanation of A	
	2. Both A and R are true but R is not the correct explanation of A	
	3. A is true but R is false	
	4. A is false and R is True	
(C)	The dominance of which colour out of the following can be seen in the miniature painting Krishna lifting Mount Govardhan? 1. White 2. Pink. 3. Blue. 4. Red	1
(D)	In the present times, Qawwalis of Amir Khusro are sung at the Dargah of Hazrat Nizamuddin Auliya which still carry the essence of their relationship seen in the painting "Hazrat Nizamuddin Auliya and Amir Khusro which is: 1. Mentor- Disciple 2. Father -Son 3. Two brothers 4. Master- Servant	1
(E)	The subject matter of Mughal miniatures paintings was based on the wishes of: 1. Common people 2. Saints 3. Emperors / Kings 4. Soldiers	1
(F)	In which of the following pictures, "Jahangir Patshah," "Uttam" and "Bahri" are written in Devanagari script. 1. Kabir and Raidas	1

	2. Falcon on Bird Rest. 3. Maru Ragini 4. Bharat meets Rama in Chitrakoot.	
(G)	Name the print maker who has effectively fused traditional symbols with modernity in his graphic print "Devi" achieving a balanced composition. 1. Dana 2. Nihal Chand 3. K. Lakshma Gaud 4. Jyoti Bhatt	1
(H)	In which of his bronze sculpture, Amarnath Sehgal has created a family structure, with three long and thin spoke-like figures reflecting the problems of under privileged section of society? 1. Children 2. Cries Unheard 3. Santhal family. 4. Mother and Child	1
	SECTION-B **(Short answer type questions)** **Answer for this question is expected around 100 words**	
Q2.	In today's era, where instability, formality, lack of commitment are often felt in relationships, Adiyogi Shiva, believed to be the first lover of the universe is shown grieving on the body of his lifeless wife, in a heart-touching painting of Bengal school. Identify the painting, its artist, medium and technique. What life values is it teaching us about maintaining the bond of relationships, selfless love, and dedication. (OR) Today our National Flag proudly 'fly high', enveloping the stories of the	2

	life struggles of our revolutionary heroes and symbolically guides us with life values. • Explain the significance of the colours in context to the struggles of real heroes. • Also explain the importance of Chakra with its 24 spokes.	
Q3.	In this miniature painting, the artist has skillfully and aesthetically added a mound between trees which enables the division of the painting into two parts. The upper part showcases indoor environment of the palace, while the lower part flaunts the lush green outdoor garden of Rajasthan area. • Identify the painting, its artist, medium and technique. • Briefly explain: to what extent the artist has been successful in depicting its subject matter? (OR) In this Pahari miniature painting Krishna and Balram are shown in 'Baal Swaroop', travelling inside a bullock cart with their mother. The composition is enhanced by adding a naturalistic background. • Identify the painting its artist medium and the sub school. • According to you, till what extent has the artist been successful in depicting its subject matter.	2
Q4.	In which Mughal painting the fragrance of 'the bond of friendship' is seen shared through 'simple living and profound thinking", • Name the painting, and painter and explain this monochrome artwork. • Explain the special qualities of this bond. which qualities do you want to imbibe in your life? (OR)	2

	This famous warrior queen resisted the Mughal political attempts to overtake the state by Emperor Akbar. A revered and accomplished ruler, she was a great sportsperson as shown in this painting, playing equestrian polo game, when most women stayed in purdah. • Identify the painting and describe its style. • Explain the picture in a short, highlighting the special qualities of a brave, empowered and sportswoman.	
Q5.	Abanindranath created awareness about the lost language of Indian art from our rich past. Supporter of Swadeshi values, he started a journal which published the paintings of Bengal School. In one of his paintings, as the sun sets, a cycle of life comes to an end after being oppressed by its owner. • Explain: what will you make in a poster to show the connection of this theme of 'the struggle for life till its last breath' in today's context. • Identify the painting and what elements of design will you use. (OR) The life of a widow in the society has always been challenging. She is not only excluded from the activities of celebrations but boycotted from the family and society. As soon as this unfortunate mishap occurs, her life loses colour and becomes 'black and white'. • Identify this graphic print, its printmaker, medium and technique. • Write briefly what is shown in this print?	2
Q6.	Just as today's women are moving forward by acquiring knowledge of modern equipment, similarly the women of the Middle Ages were proficient in horse riding and sword fighting. One such picture of Rajasthani style is showing their empowerment. • Identify the painting, its artist medium and technique. • What is the artist trying to show in this painting and how?	2

	(OR) The very meaning of Krishna is attraction. So how could the Gopis of Gokul stop themselves from getting attracted and devoting themselves towards their idol. • Identify one such painting in Pahari style and name its artist, medium and sub- school • Explain the different ways of devotion shown by the Gopi.	
	SECTION-C	
	Attempt any two questions from the given options. **(Long answer type questions)** **Answer for this question is expected in around 200 words**	
Q7.	This timeless embodiment of compassion who embraced the poor and the destitute as her own, has been captured on the canvas in semi abstract forms by M.F. Hussain. • Who was this compassionate lady? Name the Title of this work, its medium and technique. • Despite of not having any facial features or expression, what emotions does this painting evoke in you as an artist? • How successful has, the artist been in use of modern trends in art.	6
Q8.	The Mughal Miniatures are known for depicting royal marriages with Grandeur and crowded figures in its stylistic approach. • From your course of study, identify the painting, its artist, period and medium. • Based on the aesthetical parameters describe in detail the depiction of its theme.	6

	• Elaborate the characteristics of Mughal miniature style of its time.	
Q9.	Analyze the given artwork based on your observation and describe through the following points. • Name the painting, Sub School, its artist, medium & technique. • Highlight the subject matter while describing the main male and female personality on whose life this artwork is based on. • Support your answer by explaining, how the depiction of the attendants and the animal figures inspires you to perform your given duty with dedication. 	6

SUBJECT – APPLIED ART (COMMERCIAL ART) (CODE-052)
MARKING SCHEME
CLASS XII (2024-25)

One Theory Paper – 2 hrs   **Total Marks – 30**

S.No.	SECTION-A (MCQ BASED)	Marks
Q1.	**Select the right answer from the given options:**	
(A)	(iii)	1
(B)	(i)	1
(C)	(iii)	1
(D)	(i)	1
(E)	(iii)	1
(F)	(ii)	1
(G)	(iv)	1
(H)	(ii)	1
	SECTION-B **(Short answer type questions)** **Answer for this question is expected in more than 100 words**	
Q2.	Name of the Artist, Painting, Medium and Technique 1 MARK. Description & Values identified 1 MARK. 'SHIV AND SATI' Key points that can be used in the answer: • (NANDLAL BOSE, SHIV AND SATI, BENGAL SCHOOL, WATER COLOURS, WASH TECHNIQUE in TEMPERA, Subject Matter - BASED ON MYTHOLOGY, • MARRIAGE IS BASED ON THE FOUNDATION OF TRUST, HONESTY UNDERSTANDING, COMMUNICATION, MUTUAL RESPECT LOVE, COMMITMENT, HUMILITY, PATIENCE and FORGIVENESS. The Bond of marital relationship stays intact even after the passing away of the partner as reflected by colours- LIGHT HALO, their pose portraying helplessness PAIN, SORROW even after being Divine Souls.	2

	TRANSPARENCY IN CLOTHES, few JEWELLERY loosely falling off are used as artistic tools. (OR) Colours and their symbolic meaning 1 Mark. Details of Ashoka Chakra and its 24 spokes 1 Mark. NATIONAL FLAG <u>Key Points that can be used in the Answer</u> (SAFFRON - SACRIFICE, COURAGE, STRENGTH WHITE - PEACE AND TRUTH, GREEN – CHEVILARY, GROWTH, PROSPERITY, BLUE- SKY, OCEAN CHAKRA, PROGRESS SPOKES - 24 HOURS DHARM CHAKRA with SPOKES – CONTINUOUSLY following DHARMA (DUTY) 24 hours of the day)	
Q3.	Name of the Painting, its Artist and Medium, Technique 1 MARK Name of the Painting and description of its Subject Matter 1 MARK KRISHNA ON SWING <u>Key points that can be used in the answer:</u> (KRISHNA ON SWING, NURUDDIN, WATERCOLOUR, TEMPERA, Subject Matter: VARIATION IN MOODS OF RADHA, HAPPY/ UNHAPPY/ ANGRY WITH KRISHNA- IDENTIFIED IN PITAMBER, EXPLAIN THROUGH COMPARING POSTURES OF BOTH KRISHNA, RADHA ENVIRONMENT HELP IN BUILDING THE SCENE, GOPI AS A MESSENGER, DETAILED COSTUMES, USE OF ARCHITECTURE, PROFILE FACES, ETERNAL AND DEVINE LOVE, JEWELLERY, SWING, CARPET, MASNAD OR PILLOW, ETC.) (OR) Painting & Sub School 1 MARK Description of Subject 1 MARK	2

	NAND, YASHODA AND KRISHNA WITH KINSMEN GOING TO VRINDAVAN'	
	Key points that can be used in the answer:	
	('NAND, YASHODA AND KRISHNA WITH KINSMEN GOING TO VRINDAVAN'NAINSUKH, KANGRA, WATER COLOUR IN TEMPRA KRISHNA IN PITAMBER, SMILING FACES, KINSMEN, EXPLAIN MULTIPLE FIGURES IN ACTION SHOWING MOVEMENT BACKGROUND, DAYTIME COSTUME JEWELLERY,)	
Q4.	Painting Artist and explanation 1 Mark Any two human values 1 Mark KABIR AND RAIDAS Key Points that can be used in the Answer (KABIR AND RAIDAS, USTAD FAKIRULLAN KHAN, THIS WATERCOLOUR ON TEMPERA, WITH TWO SIMPLE HUMAN FIGURES DOING THEIR WORK AGAINST A HUT IS SHOWN REALISTICALLY THROUGH LIGHT AND SHADE, PERSPECTIVE, REFLECT SECULARISM, SIMPLICITY, SIMPLE LIVING HIGH. VALUES, FRIENDSHIP, PASSION TOWARDS WORK, PERSONAL REFLECTION ON QUALITIES IMBIBED) (OR) 'CHAND BIBI PLAYING POLO' Painting and Style 1 MARK Explanation of Qualities 1 MARK Key points that can be used in the answer: (WOMEN PLAYING POLO WHICH WAS THE GAME MAJORLY PLAYED BY MALES AT THAT TIME, GOLCONDA, DECORATED HORSES, DECCAN SCHOOL, DEPICTION OF NATURE, OUTDOOR	2

	SCENE, LIFE OF WOMEN, PRINCESS, FEMALE FIGURES, USE OF TREES AND POND, REPRESENTATION OF FEMALE REFEREE, IMPORTANT ROLE OF FEMALES, WELL COMPOSED, AESTHETIC QUALITIES OF THE PAINTING ETC.)	
Q5.	Explanation of concept connected to the painting 1 MARK Identification and Description of the design element attached 1 MARK Key points that can be used in the answer: (JOURNEY'S END, SYMBOLICALLY SHOWING EMPATHY, INSENSITIVE BEHAVIOR WITH ANIMALS, PAIN, SUFFERING, AGON IN, CAME'S POSTURE WITH HEAVY BURDEN, EXCESSIVE WORK TAKEN, CAN COLAPSE EVEN THE HARDEST WORKING PERSON WHO DOES NOT GIVE UP TEARS FLOWING FROM THE EYE. ELEMENTS OF DESIGN IN RELATION TO AESTHETIC QUALITIES OF THE PAINTING MADE USING DARK BACKGROUND, WASH TECHNIQUE, TEMPERA, SUNSET IN DULL COLOURS, WELL COMPOSED ETC.) (OR) Name of print, Medium & Technique 1 Mark Description of the print showing social problem 1 Mark OFF WALLS Key Points that can be used in the Answer. (OFF WALLS, ETCHING ON ZINC PLATE, BLACK AND WHITE, PRINT ON PAPER, SITUATION IN INDIAN SOCIETY OF A WIDOW SHOWN THROUGH BLACK FACE AND WHITE GARMENTS, DISCRIMINATION FROM SOCIETY, WALL USED AS A BLACKBOARD NARATING LIFE SITUATION OF WOMEN BEFORE AND AFTER HUSBAND'S DEATH,	2

	CONSERVATIVE BELIEVES, SHOWING MAN DOMINATED SOCIETY AND HELPLESSNESS OF THE FAMILY.)	
Q6.	Name of the Artwork, Artist and Medium 1MARK Description and Subject Matter 1 MARK CHAUGAN PLAYERS, Key points that can be used in the answer: (DANA, CHAUGAN PLAYERS, JODHPUR, RAJASTHANI SCHOOL, WATER COLOUR, TEMPERA, WOMEN PLAYING POLO WITH PRIDE RIDING DECORATED HORSES, A SPORT DOMINANTLY PLAYED BY MEN, WITH SPORTSMEN SPIRIT, BREAKING NORMS, DEPICTION OF EMPOWERING ONESELF, WELL BALANCED SCENE, LIFE OF THIS WOMEN COMPARED TO OTHERS OF THAT TIME, PRINCESS AND MAIDS HAVE SIMILAR EXPRESSIONS, ALTHOUGH WEARING BELL SHAPED GHAGRA, REFLECTION OF WOMEN EMPOWERMENT, IMPORTANT ROLE OF FEMALES IN A WELL-COMPOSED, PAINTING ETC.) (OR) Painting and Artist, Technique And Mediu 1 MARK Subject Matter and explanation of devotion 1 MARK 'KRISHNA WITH GOPIS' Key points that can be used in the answer: ('KRISHNA WITH GOPIES' MANAKU, WATERCOLOUR IN TEMPERA, BASSOLI KRISHNA FIGURE IN PITAMBAR STANDING IN THE CENTER, EXPLAIN GOPIES COSTUMES, SMILING FACES, PROFILE, JEWELLERY, FEMALE FORMS, VARIOUS EMOTIONS. SUCH AS FOLDED HANDS- DEVOTION, EMBRACING - ETERNAL AND DEVINE LOVE, FALLING ON FEET -COMPLETE SURRENDER, FANNING-CARE ETC.)	2

		SECTION-C	
		Attempt any two questions from the given options **(Long answer type questions)** **Answer for this question is expected in more than 200 words**	
Q7.		Name of the main female figure and title, medium and technique 2 MARKS Emotions this painting evoke 2 MARKS Description of use of modern trends 2 MARKS MOTHER TERESA Key points that can be used in the answer: (MOTHER TERESA, OIL ON CANVAS, LOVE, COMPASSION, SELFLESSNESS, NOBILITY, HOPE, CARE, SUCCESSFULLY SHOWN IN SEMI ABSTRACT FIGURES MADE IN BOLD LINES, MOTHER IN BLUE BORDER, HOLLOW/BLACK FACES SYMBOLISING NO DISCRIMINATION, MOTHER AND CHILD BOND, DEPICTION OF DIFFERENT AGE, WELL BALANCED COMPOSITION ETC.)	6
Q8.		Name of the Artwork and Artist 1 MARK Sub School/Time period, Medium & technique 1 MARK Description of aesthetical parameters 2 MARKS Characteristics of Mughal Miniature Style 2 MARKS 'DARASHIKOH KI BAARAT' Key points that can be used in the answer: (DARASHIKOH KI BAARAT' ARTIST - HAJI MADNI.SHAHJAHAN PERIOD, WATER COLOUR IN TEMPERA NIGHT SCENE, GRANDEUR OF THE ROYAL WEDDING, HARMONIOUS MOVEMENT OF THE BAARAT, BALANCE CREATED BETWEEN BOTH SIDES OF FAMILY, UNITY IN DRESSING STYLE, STYLIZATION IN COMPOSITION DECORATED HORSES, BRIGHT COLOURS, USE OF FIREWORKS, FEMALES IN RAJASTHANI ATTIRE ON ELEPHANTS, GROOM IN THE	6

	MIDDLE, HALO BEHIND KING'S FACE, JEWELLERY, MUGHAL COSTUMES, TOO MANY FIGURES MEN IN MUGHAL ETC.)	
Q9.	Name of the Painting, Sub School, Medium & technique, Artist 2 MARKS Description of Subject Matter and aesthetic parameters 2 MARKS Explanation of inspiration and values derived 2 MARKS MARU RAGINI' Key points that can be used in the answer: (MARU RAGINI, SAHIBDIN, RAJASTHANI- MEWAR, WATERCOLOUR ON PAPER IN TEMPERA SUBJECT MATTER- KING RUNNING AWAY WITH HIS QUEEN ON A CAMEL WITH THREE ESCORTS AND A DOG AT NIGHT. AN OUTDOOR, DESERT SCENE OF LOVE, SIMPLE BORDERS, ATTENDANTS, CAMEL AND DOG ALL WORKING TOWARDS THE SUCCESS OF LOVE OF THEIR KING AND QUEEN. BRIGHT COLOURS, AESTHETIC QUALITIES OF THE PAINTING, COMMITMENT TOWARDS DUTY, LOYALTY, FAITHFULNESS ETC.)	6

HINDUSTANI MUSIC
Vocal Code-034
SAMPLE QUESTION PAPER
CLASS XII (2024-25)

One Theory Paper – 2 hrs   **Total Marks – 30**

General Instructions
● Section-A
    Attempt all Questions (Each Question will carry 1 mark)
● Section-B
    Attempt all Questions (Each Question will carry 2 Marks)
● Section-C
    Attempt all Questions (Each Question will carry 6 Marks)

S.No.	SECTION-A	Marks
1.	Number of Gamak mentioned in Sangeet Ratnakar- 1. 12 2. 15 3. 18 4. 21	1
2.	Author of Sangeet parijat Is- 1. Faiyaz Khan 2. Sharang Dev 3. Ahobal 4. Bharat	1
3.	While singing raga Malkauns the first string of Tanpur is tuned in – 1. Madhyam 2. Pancham 3. Shadaj 4. Nishad	1
4.	Choose the correct statements- A. Dhamar Tala is played with Vilambit Khayal B. Jhaptal has 10 Matras and 4 Vibhags C. Rupak has Khali on its beat D. Chhota Khayl is sung is Vilambit Laya	1

Choose the correct option

1. A & C
2. A & D
3. A & B
4. B & C

5.	Choose the correct statement	
	A. Faiyaz Khan belonged to Atrauli Gharana B. Sangeet Rathakar has seven chapters C. Komal Ga, Dha, Ni swaras are used in Bageshree D. Singing time of Ragas having Ga, Ni Komal comes twice between 10-4 Choose the correct option- 1. A & B 2. B & C 3. A & C 4. B & D	1

6.

Match List I with List II

List I	List II
A. Sandhi Prakash Raga	I. Vilambit laya
B. Bada Khayal	II. Ga Ma
C. Khataka	III. Komal Re, Komal Dha
D. Meend	IV. (Pa)

Choose the correct answer from the options given below:
1. A-I, B-II, C-III, D-IV
2. A-III, B-I, C-IV, D-II
3. A-II, B-III, C-I, D-IV
4. A-IV, B-III, C-I, D-II

1

7.	Statement I: Pt. Ahobal used the term "Komal" for Swaras for the first time. Statement II: When Pancham of Shadaj Gram is lowered by one shruti it becomes Madhyam Gram. Choose the correct option: 1. Statement I & II both are true. 2. Statement I & II both are false. 3. Statement I is true but II is false. 4. Statement I is false but II is true.	1
8.	Statement I: Krishna Rao Shankar Pandit belonged to Gwalior Gharana. Statement II: Raga Bhairav is sung during night. Choose the correct option: 1. Statement I & II both are true. 2. Statement I & II both are false. 3. Statement I is true but II is false. 4. Statement I is false but II is true.	1
	SECTION-B	
9.	Describe the technique of tuning of tanpura. (OR) Describe Jhaptala and write its Thah with Tigun in Tala Notation.	2
10.	Describe any two of the following with example: Kan, Aalap, Alankar (OR) Give a detailed account of Raga Malkauns.	2
11.	Discuss in brief the Time Theory of Ragas. (OR) Describe in brief the like sketch of Bade Ghulam Ali Khan and also his contribution to music.	2

12.	Describe any two of the following: Murchhana, Gram, Gamak	2
	(OR)	
	Discuss the importance of Sangeet Ratnakar in Indian Classical Music.	
13.	Recognize the Raga from the following phrase of swaras and elaborate it up to 60 Swaras- Ma Pa Dha Ma <u>Ga</u> Ma <u>Ga</u> Re Sa	2
	(OR)	
	Discuss musical Contents given in Sangeet Parijat in brief.	
	SECTION-C	
14.	Write the notation of a Tarana in any one of the prescribed Raga.	6
	(OR)	
	Write the notation of a Drut Khayal with one 16 Matra Tana and two 32 Matra Tanas.	
15.	Tana is a technique used in the vocal performance of the raga. 'Tana'word is derived from the Sanskrit word 'Tan' meaning extending the swaras of a raga. Tanas are of many varieties such as Sapat, Koot, Vakra, Bol Tanas etc. Sometimes, according to the nature of raga few varieties of Tanas are applied in that particular raga, therefore, while rendering the varieties of Tana, it is essential to maintain the character of the raga in its delineation too. After reading the above passage, create two Tanas in each of the prescribed ragas in different varieties of Tana. (OR) Which present day artist of Tarana or Khayal you are most impressed with? Critically analyse his/her Style.	6

HINDUSTANI MUSIC
Vocal Code-034
MARKING SCHEME
CLASS XII (2024-25)

One Theory Paper – 2 hrs   **Total Marks – 30**

S.No.	SECTION-A	Marks
1.	2. 15	1
2.	3. Ahobal	1
3.	1. Madhyam	1
4.	4. B & C	1
5.	4. B & D	1
6.	2. A –III, B-I, C-IV, D-II	1
7.	1. Both I & II are true.	1
8.	3. Statement I is true but II is false	1
	SECTION-B	
9.	Different parts of Tanpura involved in tuning it and method of tuning the strings. (OR) The candidates is expected to write the special features of Jhaptala and write its Thah and Tigun in Tala Notation i.e. Matra, Bols and signs of Tali and Khali.	2
10.	Brief explanation of Kan, Aalap, Alankar (any two) with examples. (OR) The candidate is expected to write Thaat, Vadi, Samvadi, Swaras, Jati, Time of singing, Similar raga., Aroh, Avaroh, Pakad, and other salient features of raga Malkauns.	2
11.	The candidate is expected to explain meaning, importance and historical development of Time Theory of Raga. (OR) The candidate is expected to write about the date and place of birth, style, gharana, techniques, guru, disciples achievements and contribution to music of Bade Ghulam Ali Khan.	2

12.	A brief description of the terms Murchhana, Gram, Gamak (any Two) and also write their types with example. <center>(OR)</center> Author's name, time, Chapters and main musical concepts given in each chapter of Sangeet Ratnakar.	2
13.	The candidate is expected to identify Raga Bageshree and elaborate it. <center>(OR)</center> Sangeet Parijat's author's name, time and special features and musical concepts of the text to be given.	
	<center>**SECTION-C**</center>	
14.	Notation of Tarana in any one of the prescribed raga is to be written in proper format of Notation System. <center>(OR)</center> Notation of a Drut Khayal in any prescribed raga is to be written with one 16 matra Tana and two 32 matra tanas.	6
15.	The Candidate is expected to write two tanas of different varieties in each prescribed raga. For examples: Sapaat Tana – Sa Re Ga Ma Pa Dha Ni Sà Ni Dha Pa Ma Ga Re Sa Sa Vakra Tana- Dha Ma Ga Ma Dha Ni Dha Ma Ga Ma Ga Sa <center>(OR)</center> The candidate is expected to write about the style, technique, etc of his / her favourite Tarana or Khayal singer.	6

SAMPLE QUESTION PAPER (THEORY)
CLASS: XII SESSION: 2024-25
COMPUTER SCIENCE (083)

Time allowed: 3 Hours   **Maximum Marks: 70**

General Instructions:

● This question paper contains 37 questions.

● All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions

● The paper is divided into 5 Sections- A, B, C, D and E.

● Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.

● Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.

● Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.

● Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.

● Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.

● All programming questions are to be answered using Python Language only.

● In case of MCQ, text of the correct answer should also be written.

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1.	State True or False: The Python interpreter handles logical errors during code execution.	(1)
2.	Identify the output of the following code snippet: text = "PYTHONPROGRAM" text=text.replace('PY','#') print(text) (A) #THONPROGRAM (B) ##THON#ROGRAM (C) #THON#ROGRAM (D) #YTHON#ROGRAM	(1)
3.	Which of the following expressions evaluates to False? (A) not(True) and False (B) True or False (C) not(False and True) (D) True and not(False)	(1)
4.	What is the output of the expression? str='International'	(1)

	print(str.split("n")) (A) ('I', 'ter', 'atio', 'al') (B) ['I', 'ter', 'atio', 'al'] (C) ['I', 'n', 'ter', 'n', 'atio', 'n', 'al'] (D) Error	

5.	What will be the output of the following code snippet?
	    str= "World Peace"
	    print(str[-2::-2])
		(1)

6.	What will be the output of the following code?
	    tuple1 = (1, 2, 3)
	    tuple2 = tuple1
	    tuple1 += (4,)
	    print(tuple1 == tuple2)
	
	(A) True
	(B) False
	(C) tuple1
	(D) Error
		(1)

7.	If my_dict is a dictionary as defined below, then which of the following statements will raise an exception? my_dict = {'apple': 10, 'banana': 20, 'orange': 30} (A) my_dict.get('orange') (B) print(my_dict['apple', 'banana']) (C) my_dict['apple']=20 (D) print(str(my_dict))	(1)
8.	What does the list.remove(x) method do in Python? (A) Removes the element at index x from the list (B) Removes the first occurrence of value x from the list (C) Removes all occurrences of value x from the list (D) Removes the last occurrence of value x from the list	(1)
9.	Which of the following statements will cause an error? (A) t=1, (B) t=(1,) (C) t=(1) (D) t=tuple(1)	(1)

10.	Write the missing statement to complete the following code:
	file = open("example.txt", "r")
	data = file.read(100)
	_____ #Move the file pointer to the beginning of the file
	next_data = file.read(50)
	file.close()
		(1)

11.	State whether the following statement is True or False: The finally block in Python is executed only if no exception occurs in the try block.	(1)

12.	What will be the output of the following code?
	   c = 10
	   def add():
	      global c
	      c = c + 2
	      print(c,end='#')
	   add()
	   c=15
	   print(c,end='%')
	
	(A) 12%15#
	(B) 15#12%
	(C) 12#15%
	(D) 12%15#
		(1)

13.	Which SQL command can change the degree of an existing relation?	(1)
14.	What will be the output of the query? SELECT * FROM products WHERE product_name LIKE 'App%'; (A) Details of all products whose names start with 'App' (B) Details of all products whose names end with 'App' (C) Names of all products whose names start with 'App' (D) Names of all products whose names end with 'App'	(1)
15.	In which datatype the value stored is padded with spaces to fit the specified length. (A) DATE (B) VARCHAR (C) FLOAT (D) CHAR	(1)
16.	Which aggregate function can be used to find the cardinality of a table? (A) sum() (B) count() (C) avg() (D) max()	(1)
17.	Which protocol is used to transfer files over the Internet? (A) HTTP (B) FTP (C) PPP (D) HTTPS	(1)

18.	Which network device is used to connect two networks that use different protocols?
	    (A) Modem
	    (B) Gateway
	    (C) Switch
	    (D) Repeater
		(1)

19.	Which switching technique breaks data into smaller packets for transmission, allowing multiple packets to share the same network resources.	(1)

	Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as:
	    (A) Both A and R are true and R is the correct explanation for A
	    (B) Both A and R are true and R is not the correct explanation for A
	    (C) A is True but R is False
	    (D) A is False but R is True	

20.	Assertion (A): In the case of positional arguments, the function call and function definition statements match in terms of the number and order of arguments. Reasoning (R): During a function call, positional arguments should precede keyword arguments in the argument list.	(1)
21.	Assertion (A): A SELECT command in SQL can have both WHERE and HAVING clauses. Reasoning (R): WHERE and HAVING clauses are used to check conditions, therefore, these can be used interchangeably.	(1)

Q No	Section-B (7 x 2=14 Marks)	Marks
22.	How is a mutable object different from an immutable object in Python? Identify one mutable object and one immutable object from the following: (1,2), [1,2], {1:1,2:2}, '123'	(2)
23.	Give two examples of each of the following: (I) Arithmetic operators (II) Relational operators	(2)

24.	If L1=[1,2,3,2,1,2,4,2, . . .], and L2=[10,20,30, . . .], then
	 (I)
	    A) Write a statement to count the occurrences of 4 in L1.
	                        OR
		(2)

	B) Write a statement to sort the elements of list L1 in ascending order.
	
	(II)
	   A) Write a statement to insert all the elements of L2 at the end of L1.
	OR
	   B) Write a statement to reverse the elements of list L2.	

25.	Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable b. import random a="Wisdom" b=random.randint(1,6) for i in range(0,b,2): print(a[i],end='#') <table><tr><td>(A) W#</td><td>(B) W#i#</td></tr><tr><td>(C) W#s#</td><td>(D) W#i#s#</td></tr></table>	(2)
26.	Give an example of a table which has one Primary key and two alternate keys. How many Candidate keys will this table have?	(2)

27.	(I)
	   A) What constraint should be applied on a table column so that duplicate values are not allowed in that column, but NULL is allowed.
	OR
	   B) What constraint should be applied on a table column so that NULL is not allowed in that column, but duplicate values are allowed.
	
	(II)
	   A) Write an SQL command to remove the Primary Key constraint from a table, named MOBILE. M_ID is the primary key of the table.
	OR
	   B) Write an SQL command to make the column M_ID the Primary Key of an already existing table, named MOBILE.
		(2)

28.	A) List one advantage and one disadvantage of star topology. **OR** B) Expand the term SMTP. What is the use of SMTP?	(2)

	Section-C (3 x 3 = 9 Marks)	
29.	A) Write a Python function that displays all the words containing **@cmail** from a text file "Emails.txt". **OR** B) Write a Python function that finds and displays all the words longer than 5 characters from a text file "Words.txt".	(3)

30.	A) You have a stack named **BooksStack** that contains records of books. Each book record is represented as a list containing **book_title**, **author_name**, and **publication_year**.
	Write the following user-defined functions in Python to perform the specified operations on the stack **BooksStack**:
	  (I) push_book(BooksStack, new_book): This function takes the stack BooksStack and a new book record new_book as arguments and pushes the new book record onto the stack.
	  (II) pop_book(BooksStack): This function pops the topmost book record from the stack and returns it. If the stack is already empty, the function should display "Underflow".
	  (III) peep(BookStack): This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.
	OR
	B) Write a Python program to input an integer and display all its prime factors in descending order, using a stack. For example, if the input number is 2100, the output should be: 7 5 5 3 2 2 (because prime factorization of 2100 is 7x5x5x3x2x2)
	Hint: *Smallest factor, other than 1, of any integer is guaranteed to be prime.*
		(3)
| 31. | Consider the table ORDERS as given below, and write the following queries:<br><br>```
+------+----------+------------+----------+-------+
| O_Id | C_Name   | Product    | Quantity | Price |
+------+----------+------------+----------+-------+
| 1001 | Jitendra | Laptop     |        1 | 12000 |
| 1002 | Mustafa  | Smartphone |        2 | 10000 |
| 1003 | Dhwani   | Headphone  |        1 |  1500 |
|  .   |  .       |  .         |    .     | . .   |
|  .   |  .       |  .         |    .     | . .   |
|  .   |  .       |  .         |    .     | . .   |
+------+----------+------------+----------+-------+
```<br>**Note**: *The table contains many more records than shown here.*<br>A)<br>  (I)   To display the total Quantity for each Product, excluding Products with total Quantity less than 5.<br>  (II)  To display the orders table sorted by total price in descending order.<br>  (III)  To display the distinct customer names from the Orders table.<br>OR | (3) |

		B)	
		(I)	To display the total number of orders quantity-wise.
		(II)	To delete all the orders where the Product is Laptop.
		(III)	Display the sum of Price of all the orders for which the quantity is null.

Q. No.	SECTION D (4 X 4 = 16 Marks)	Marks

32.	A)
	
	   I. When is ZeroDivisionError exception raised in Python?
	   II. Give an example code to handle ZeroDivisionError? The code should display the message "Division by Zero is not allowed" in case of ZeroDivisionError exception, and the message "Some error occurred" in case of any other exception.
	
	OR
	
	B)
	
	   I. When is NameError exception raised in Python?
	   II. Give an example code to handle NameError? The code should display the message "Some name is not defined" in case of NameError exception, and the message "Some error occurred" in case of any other exception.
		(4)

33.	A csv file "Happiness.csv" contains the data of a survey. Each record of the file contains the following data:
	
	● Name of a country
	
	● Population of the country
	
	● Sample Size (*Number of persons who participated in the survey in that country*)
	
	● Happy (*Number of persons who accepted that they were Happy*)
	For example, a sample record of the file may be:
	 Signiland, 5673000, 5000, 3426
	Write the following Python functions to perform the specified operations on this file:
	   (I) Read all the data from the file and display all those records for which the population is more than 5000000.
	   (II) Count the number of records in the file.
		(4)

34.	Saman has been entrusted with the management of Law University Database. He needs to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below.	(4)

Table: **FACULTY**

F_ID	FName	LName	Hire_Date	Salary

102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

Table: **COURSES**

C_ID	F_ID	CName	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

(I)   To display complete details (from both the tables) of those Faculties   whose salary is less than 12000.

(II)   To display the details of courses whose fees is in the range of 20000 to 50000 (both values included).

(III)   To increase the fees of all courses by 500 which have "Computer" in their Course names.

(IV)   (A) To display names (FName and LName) of faculty taking System Design.

OR

(B) To display the Cartesian Product of these two tables.

35.

A table, named STATIONERY, in ITEMDB database, has the following structure:

```
+----------+-------------+
| Field    | Type        |
+----------+-------------+
| itemNo   | int(11)     |
| itemName | varchar(15) |
| price    | float       |
| qty      | int(11)     |
+----------+-------------+
```

Write the following Python function to perform the specified operation:

AddAndDisplay(): To input details of an item and store it in the table STATIONERY. The function should then retrieve and display all records from the STATIONERY table where the Price is greater than 120.

Assume the following for Python-Database connectivity:
     Host: localhost,   User: root,   Password: Pencil

(4)

Q.No.	SECTION E (2 X 5 = 10 Marks)	Marks
36.	Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this he wants the following information of each candidate to be stored: Candidate_ID – integer Candidate_Name – string Designation – string Experience – float You, as a programmer of the company, have been assigned to do this job for Surya. Suggest: (I) What type of file (text file, csv file, or binary file) will you use to store this data? Give one valid reason to support your answer. (II) Write a function to input the data of a candidate and append it in the file that you suggested in part (I) of this question. (III) Write a function to read the data from the file that you suggested in part (I) of this question and display the data of all those candidates whose experience is more than 10.	(5)
37.	Event Horizon Enterprises is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, FOOD, MEDIA, DECORATORS. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various blocks/buildings and other given parameters. Block to Block distances (in Mtrs.)	(5)

Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	FOOD	42 m
ADMIN	MEDIA	96 m

ADMIN	DECORATORS	48 m
FOOD	MEDIA	58 m
FOOD	DECORATORS	46 m
MEDIA	DECORATORS	42 m

Distance of Delhi Head Office from Mumbai Campus = 1500 km

Number of computers in each of the blocks/Center is as follows:

ADMIN	25
FOOD	18
MEDIA	30
DECORATORS	20
DELHI HEAD OFFICE	18

(I) Suggest the most appropriate location of the server inside the MUMBAI campus. Justify your choice.

(II) Which hardware device will you suggest to connect all the computers within each building?

(III) Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. Which cable would you suggest for the most efficient data transfer over the network?

(IV) Is there a requirement of a repeater in the given cable layout? Why/ Why not?

(V) A) What would be your recommendation for enabling live visual communication between the Admin Office at the Mumbai campus and the DELHI Head Office from the following options:
   a) Video Conferencing
   b) Email
   c) Telephony
   d) Instant Messaging

OR

B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the MUMBAI campus?

MARKING SCHEME

Class: XII Session: 2024-25

Computer Science (083)

Time allowed: 3 Hours   **Maximum Marks: 70**

Q No.	SECTION A (21X1=21)	Marks
1.	False *(1 mark for correct answer)*	(1)
2.	(A) #THONPROGRAM *(1 mark for correct answer)*	(1)
3.	(A) not (True) and False *(1 mark for correct answer)*	(1)
4.	(B) ['l', 'ter', 'atio', 'al'] *(1 mark for correct answer)*	(1)
5.	ce lo *(1 mark for correct answer)*	(1)
6.	(B) False *(1 mark for correct answer)*	(1)
7.	(B) print(my_dict['apple', 'banana']) *(1 mark for correct answer)*	(1)
8.	(B) Removes the first occurrence of value x from the list *(1 mark for correct answer)*	(1)
9.	(D) t=tuple(1) *(1 mark for correct answer)*	(1)
10.	file.seek(0) (OR file.seek(0,0)) *(1 mark for correct answer)*	(1)
11.	False *(1 mark for correct answer)*	(1)
12.	(C) 12#15% *(1 mark for correct answer)*	(1)
13.	Alter (or Alter Table) *(1 mark for correct answer)*	(1)
14.	(A) Details of all products whose names start with 'App'	(1)

	(1 mark for correct answer)	
15.	(D) CHAR *(1 mark for correct answer)*	(1)
16.	(B) count() *(1 mark for correct answer)*	(1)
17.	(B) FTP *(1 mark for correct answer)*	(1)
18.	(B) Gateway *(1 mark for correct answer)*	(1)
19.	(B) Packet Switching *(1 mark for correct answer)*	(1)
20.	(B) Both A and R are true and R is not the correct explanation for A. *(1 mark for correct answer)*	(1)
21.	(C) A is True but R is False. *(1 mark for correct answer)*	(1)

Q No.	SECTION B (7 X 2 =14)	Marks
22.	A mutable object can be updated whereas an immutable object cannot be updated. Mutable object: [1,2] or {1:1,2:2} (Any one) Immutable object: (1,2) or '123' (Any one) *(1 mark for correct difference)* *(½ x 2 = 1 Mark for selecting correct objects)*	(2)
23.	(I) Arithmetic operators: +,- (II) Relational operators: >, >= *(½ x 4 = 2 Marks for each correct operator)*	(2)

24.	(I)
	   A) L1.count(4)
	  OR
	   B) L1.sort()
	  (1 mark for correct answer)
	
	  (II)
	   A) L1.extend(L2)
		(2)

	OR B) L2.reverse() *(1 mark for correct answer)*	
25.	(A), (C) *(½ x 2 = 1 Mark)* Minimum and maximum possible values of the variable b: 1,6 *(½ x 2 = 1 Mark)*	(2)
26.	Table: **Student** | ADMN	RollNo	Name	PhoneNo
---	---	---	---
124	1	Chavi	989899
235	2	Arpita	931124
276	3	Chavi	972457 | Primary key: ADMN Alternate keys: RollNo, PhoneNo Total Candidate keys: 3 *(1 mark for the correct table)* *(1 mark for number of candidate keys)*	(2)

27.	(I)
	   A) UNIQUE
	                      OR
	   B) NOT NULL
	(1 mark for correct answer)
	
	  (II)
	    A) ALTER TABLE MOBILE DROP PRIMARY KEY;
	                 OR
	    B) ALTER TABLE MOBILE ADD PRIMARY KEY (M_ID);
	(1 mark for correct answer)
		(2)

28.	A) Advantage: Network extension is easy. Disadvantage: Failure of switch/hub results in failure of the network. *(1 mark for correct Advantage)* *(1 mark for correct Disadvantage)* **OR** B) SMTP: Simple Mail Transfer Protocol.	(2)

SMTP is used for sending e-mails from client to server.

(1 mark for correct expansion)

(1 mark for correct usage)

Q No.	SECTION C (3 X 3 = 9)	Marks

29.	(A)
	
	def show():
	  f=open("Email.txt",'r')
	  data=f.read()
	  words=data.split()
	  for word in words:
	    if '@cmail' in word:
	      print(word,end=' ')
	  f.close()
	
	(½ mark for correct function header)
	(½ mark for correctly opening the file)
	(½ mark for correctly reading from the file)
	(½ mark for splitting the text into words)
	(1 mark for correctly displaying the desired words)
	
	OR
	
	(B)
	def display_long_words():
	  with open("Words.txt", 'r') as file:
	    data=file.read()
	    words=data.split()
	    for word in words:
	      if len(word)>5:
	        print(word,end=' ')
	
	(½ mark for correct function header)
	(½ mark for correctly opening the file)
	(½ mark for correctly reading from the file)
	(½ mark for splitting the text into words)
	(1 mark for correctly displaying the desired words)
		(3)

30.	(A)	
	(I)	
	``` def push_book(BooksStack, new_book): BooksStack.append(new_book) ```	
	(II)	
	``` def pop_book(BooksStack): if not BooksStack: print("Underflow") else: return(BookStack.pop()) ```	
	(III)	
	``` def peep(BooksStack): if not BooksStack: print("None") else: print(BookStack[-1]) ```	
	(3x1 mark for correct function body; No marks for any function header as it was a part of the question)	(3)
	OR	
	(B)	
	``` n=int(input("Enter an integer: ")) s=[] #stack f=2 while n>1: if n%f==0: s.append(f) n//=f else: f+=1 while s: print(s.pop(),end=' ') ```	
	(½ mark for correct input)	
	(½ mark for correctly declaring an empty stack)	
	(1 mark for correctly pushing the factors on the stack)	
	(1 mark for correctly popping and displaying the factors)	
31.	(A)	
	(I) select Product, sum(Quantity) from orders group by product having sum(Quantity)>=5;	(3)
	(II) select * from orders order by Price desc;	
	(III) select distinct C_Name from orders;	
	(3x 1 mark for each correct query)	

	OR	
	(B)	
	(I) select quantity, count(*) from orders group by quantity;	
	(II) delete from orders where product = "Laptop";	
	(III) select sum(price) from orders where quantity is null;	
	(3x 1 mark for each correct query)	

Q No.	SECTION D (4 X 4 = 16)	Marks

32.	(A)
	
	 (I) ZeroDivisionError is raised when a statement tries to divide a number
	   by zero. *(1 Mark for correct answer)*
	
	 (II)
	
	``
	try:
	   a=int(input("Enter an integer: "))
	   print("Reciprocal of the number =",1/a)
	except ZeroDivisionError:
	   print("Division by Zero is not allowed")
	except:
	   print("Some Error Ocurred")
	``
	(3x 1 mark for each correct part – try, except, except)
	 OR
	(B)
	
	 (I) NameError is raised when an undefined identifier is used in the program.
	   (1 Mark for correct answer)
	
	 (II)
	
	``
	try:
	   a=eval(input("Enter an integer: "))
	   print("Reciprocal of the number =",1/a)
	except NameError:
	   print("Some name is not defined")
	except:
	   print("Some Error Ocurred")
	``
	
	(3x1 Mark for each correct part – try, except, except)
		(4)

33.	(I)
	``
	def show():
	   import csv
	   f=open("happiness.csv",'r')
	   records=csv.reader(f)
	   next(records, None) #To skip the Header row
	   for i in records:
	      if int(i[1])>5000000:
	         print(i)
	``
		(4)

f.close()

(½ mark for opening in the file in right mode)
(½ mark for correctly creating the reader object)
(½ mark for correctly checking the condition)
(½ mark for correctly displaying the records)

(II)
```
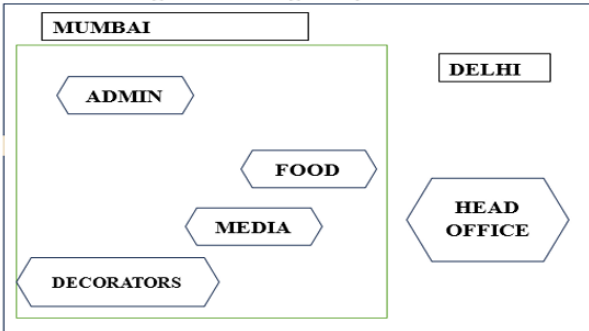def Count_records():
    import csv
    f=open("happiness.csv",'r')
    records=csv.reader(f)
    next(records, None) #To skip the Header row
    count=0
    for i in records:
        count+=1
    print(count)
    f.close()
```
(½ mark for opening in the file in right mode)
(½ mark for correctly creating the reader object)
(½ mark for correct use of counter)
(½ mark for correctly displaying the counter)

Note (for both parts (I) and (II)**):**
  (i) Ignore **import csv** as it may be considered the part of the complete program, and there is no need to import it in individual functions.
  (ii) Ignore next(records, None) as the file may or may not have the Header Row.

34.
  (I)   Select * from FACULTY natural join COURSES where Salary<12000;
  (II) Select * from courses where fees between 20000 and 50000;
  (III) Update courses set fees=fees+500 where CName like '%Computer%';
  (IV) (A) Select FName, LName from faculty natural join courses where Came="System Design";

                    OR

        (B) Select * from FACULTY, COURSES;
  (4x1 mark for each correct query)

(4)

35.
```
def Add_Item():
    import mysql.connector as mycon
    mydb=mycon.connect(host="localhost",user="root",
               passwd="Pencil",database="ITEMDB")
    mycur=mydb.cursor()
    no=input("Enter Item Number: ")
    nm=input("Enter Item Name: ")
    pr=input("Enter price: ")
    qty=input("Enter qty: ")
    query="INSERT INTO stationery VALUES ({},'{}',{},{})"
```

(4)

```
query=query.format(no,nm,pr,qty)
mycur.execute(query)
mydb.commit()
mycur.execute("select * from stationery where price>120")
for rec in mycur:
    print(rec)
```

(½ mark for correctly importing the connector object)
(½ mark for correctly creating the connection object)
(½ mark for correctly creating the cursor object)
(½ mark for correctly inputting the data)
(½ mark for correct creation of first query)
(½ mark for correctly executing the first query with commit)
(½ mark for correctly executing the second query)
(½ mark for correctly displaying the data)

Q No.	SECTION E (2 X 5 = 10)	Marks
36.	**Note**: *For part (I), the student can mention any type of file with valid reason to support the choice. Answer with valid supporting reason should be considered Correct, and without a valid reason should be considered incorrect.*	(5)

(I)   Text file: A text file allows for easy maintenance of data, as it can be opened and manipulated with any text editor also.
(1 mark for correct answer)

(II)
```
def append():
    with open("Candidates.txt",'a') as f:
        C_id=input("Enter Candidate ID: ")
        C_nm=input("Enter Candidate name: ")
        C_dg=input("Enter Designation: ")
        C_ex=input("Enter Experience: ")
        rec=C_id+','+C_nm+','+C_dg+','+C_ex+'\n'
        f.write(rec)
```
(½ mark for opening in the file in right mode)
(½ mark for correctly inputting the data)
(½ mark for correctly writing the record in the file)
(½ mark for correctly closing the file, or ½ mark if the file was opened using with)

(II)
```
def display():
    with open("Candidates.txt") as f:
        for rec in f:
            data=rec.split(',')
            if float(data[-1])>10:
```

<div align="center">print(rec.strip()) #OR print(rec)</div>

(½ mark for opening the file in right mode)
(½ mark for correctly reading the data)
(½ mark for correctly checking the condition)
(½ mark for correctly displaying the records)

<div align="center">**OR**</div>

(I) CSV File: A CSV file allows for easy maintenance of data, as it can be opened and manipulated with any spreadsheet application also.

(1 mark for correct answer)

(II)

```
def append():
    with open("Candidates.csv",'a',newline='') as f:
        C_id=input("Enter Candidate ID: ")
        C_nm=input("Enter Candidate name: ")
        C_dg=input("Enter Designation: ")
        C_ex=input("Enter Experience: ")
        rec=[C_id,C_nm,C_dg,C_ex]
        w=csv.writer(f)
        w.writerow(rec)
```

(½ mark for opening in the file in right mode)
(½ mark for correctly inputting the data)
(½ mark for correctly writing the record in the file)
(½ mark for correctly closing the file, or ½ mark if the file was opened using with)

(III)

```
def display():
    with open("Candidates.csv") as f:
        r=csv.reader(f)
        for rec in r:
            if float(rec[-1])>10:
                print(rec)
```

(½ mark for opening the file in right mode)
(½ mark for correctly reading the data)
(½ mark for correctly checking the condition)
(½ mark for correctly displaying the records)

<div align="center">**OR**</div>

(I) Binary File: A binary file cannot be opened and manipulated with any general purpose application, and hence, it prevents any unintentional change in the data.

(1 mark for correct answer)

(II)

```
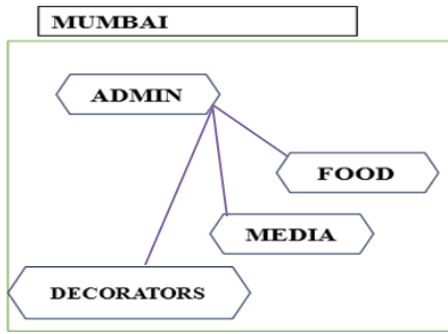def append():
```

```
with open("Candidates.dat",'ab') as f:
    C_id=int(input("Enter Candidate ID: "))
    C_nm=input("Enter Candidate name: ")
    C_dg=input("Enter Designation: ")
    C_ex=float(input("Enter Experience: "))
    rec=[C_id,C_nm,C_dg,C_ex]
    pickle.dump(rec,f)
```

(½ mark for opening in the file in right mode)
(½ mark for correctly inputting the data)
(½ mark for correctly writing the record in the file)
(½ mark for correctly closing the file, or ½ mark if the file was opened using with)

(III)
```
def display():
    with open("Candidates.dat",'rb') as f:
        while True:
            try:
                rec=pickle.load(f)
                if rec[-1]>10:
                    print(rec)
            except EOFError:
                break
```

(½ mark for opening the file in right mode)
(½ mark for correctly reading the data)
(½ mark for correctly checking the condition)
(½ mark for correctly displaying the records)

37.	(I) MEDIA Block as it has the maximum number of Computers.	(5)
	OR	
	ADMIN Block as ADMIN block is generally the most secure.	
	(1 mark for correct answer)	
	(II) Switch	
	(1 mark for correct answer)	
	(III)	

(or Any other correct layout)

Cable: Optical Fibre

(½ mark for correct layout + ½ mark for correct table type)

(IV) There is no requirement of the Repeat as the optical fibre cable used for the network can carry the data to much longer distances than within the campus.

(1 mark for correct answer)

(V) (A) a) Video Conferencing

     OR

   (B) LAN

(1 mark for correct answer)