CLASS-XI
ENGLISH CORE (301)
SAMPLE PAPER- 2026-27

TIME ALLOWED: 3 HOURS **MAXIMUM MARKS: 80**

GENERAL INSTRUCTIONS:

1. This paper comprises 3 sections- Reading Comprehension (26 marks), Writing Skills & Grammar (23 marks) and Literature (31 marks)
2. Attempt all questions.
3. Do not write anything on the question paper.
4. All the answers must be correctly numbered as in the question paper and written in the answer sheet provided.
5. Ensure that questions of each section are answered together.
6. Read each section carefully and follow the instructions.
7. Adhere to the word limit wherever prescribed.

Section –A (Reading Skills) **(26 Marks)**

Typology	Reading Skills	Conceptual understanding, decoding, analysing, inferring, interpreting, appreciating literary conventions and vocabulary, summarising and using appropriate format/s

I. Reading Comprehension through Unseen Passages

1. Read the following passage very carefully: **(10)**

1. In a little district west of Washington Square, the streets had run crazy and broken themselves into small strips called ‘places’. These places made strange angles and curves. In one of these lived Sue and Johnsy, two young artists who shared a modest studio. They had come from different parts of the country, but their love for painting had brought them together. Their room overlooked the blank brick wall of a neighbouring house, over which an old ivy vine climbed. Autumn had stripped the vine almost bare, and only a few leaves clung stubbornly to its branches.

2. Johnsy had fallen seriously ill with pneumonia. Though the doctor treated her carefully, he admitted to Sue that medicines alone would not cure her. "The real battle," he said, "is in her mind. If she loses the desire to live, no treatment can help her." Johnsy lay silently in bed, gazing through the window at the ivy vine. She had become convinced that when the last leaf dropped from the vine, her own life would end as well. Sue tried to distract her with cheerful conversation and her sketches, but Johnsy continued to count the falling leaves with quiet determination.

3. Downstairs lived old Behrman, a painter who had spoken for years of creating a masterpiece but had never begun one. Beneath his rough appearance lay a generous heart. When Sue told him about Johnsy's strange belief, he dismissed it angrily, calling it foolishness. Yet that very night, while a fierce storm lashed the city with rain and icy winds, Behrman quietly left his room carrying a lantern, paints and a ladder.

4. The following morning, Johnsy looked towards the vine expecting to see it bare. But one solitary leaf still clung to the wall. Day after day it remained there despite the wind and rain. Gradually, hope returned to Johnsy's heart. She realised how selfish it had been to surrender to despair and resolved to recover. A few days later, the doctor declared that she would live. Only then did Sue reveal that the leaf had not been real. Behrman had painted it on the wall during the storm, sacrificing his own life after catching pneumonia. His masterpiece had not been displayed in a gallery; it had restored another person's faith in life.

(Source- Adapted from 'The Last Leaf' by O. Henry)

1.A) On the basis of your reading of the passage, answer the following by choosing the most appropriate option: (1x5=5)

i. Which statement best reflects the doctor's opinion about Johnsy's recovery?
a) Medicines alone would certainly cure her.
b) Her recovery depended greatly on her will to live.
c) Painting would help her recover immediately.
d) Changing her treatment pattern would cure her illness.

ii. The option that best describes the central idea of the passage is the _____.
a) hardships faced by struggling artists
b) healing power of selfless sacrifice and hope
c) human resilience against the fury of nature
d) importance of mastering the art of painting

iii. Complete the following analogy by choosing the correct option.
Behrman: Determination :: Johnsy : _____

a) despondency b) apprehension
c) dependence d) resignation

iv. Statement A: Johnsy believed her life would end with the fall of the last ivy leaf.
Statement R: She had not lost the desire to recover from her illness.
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.

v. Select the option that implies a similar meaning as the word 'dismissed' as used in the passage.
"When Sue told him about Johnsy's strange belief, he dismissed it angrily, calling it foolishness."
a) She dismissed the suggestion as unrealistic.
b) The teacher dismissed the class before lunch.
c) The guard dismissed the visitors from the hall.
d) The judge dismissed the witness after questioning.

1.B) Answer the following questions: (1x5=5)

vi. The doctor considers Johnsy's state of mind more significant than her physical illness. Justify.
vii. Explain the irony in Behrman's 'masterpiece'.
viii. Cite an example from the passage that reveals Sue's concern and devotion towards Johnsy.
ix. The passage suggests that hope can influence a person's recovery from adversity. Do you agree? Validate with substantial evidence from the text.

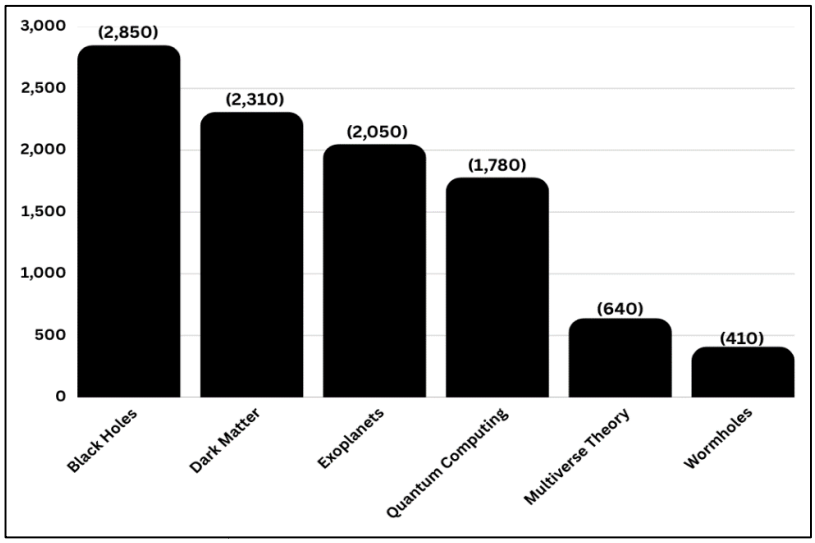
x. Although the story ends with Behrman's death, the dominant mood is one of _____ because his sacrifice saves Johnsy's life.

2. Read the following passage carefully: **(8)**

1. A question that has fascinated scientists and philosophers for centuries is whether our universe is the only one that exists. The concept of the Multiverse suggests that our universe may be just one among countless others, each with its own Laws of Physics, history and possibilities. While this idea was once confined to science fiction, it is now being explored by theoretical physicists using advanced mathematical models.

2. One of the most popular theories associated with the Multiverse is the Many-Worlds Interpretation of quantum mechanics. According to this theory, every possible outcome of a quantum event actually occurs, but in separate, parallel universes. For example, if a person chooses to study medicine instead of engineering, another universe may exist where the opposite decision was made. Although fascinating, there is currently no experimental evidence to prove this theory.

The graph shows the number of research publications on selected space science topics (2024).



3. Another intriguing concept related to the Multiverse is the wormhole. A wormhole is a hypothetical tunnel through space-time that could connect two distant regions of the universe—or perhaps even two different universes. According to Einstein's General Theory of Relativity, such structures are mathematically possible. However, scientists believe that keeping a wormhole open would require an unknown form of matter with unusual properties, making practical travel through wormholes impossible with today's technology.

4. Despite the absence of direct proof, research into the Multiverse and wormholes has significantly expanded our understanding of cosmology and quantum physics. Powerful telescopes, particle accelerators and space missions continue to investigate the mysteries of the universe. These studies often inspire new scientific discoveries, even when the original theories remain unverified.

5. Critics argue that ideas like parallel universes cannot currently be tested and therefore lie outside the boundaries of experimental science. Others believe that today's impossible theories may become tomorrow's established facts, just as black holes and gravitational waves were once considered purely theoretical before being confirmed through observation.

6. Whether the Multiverse truly exists or not, the search for answers reflects humanity's endless curiosity. Scientific progress often begins with bold questions, and every new discovery brings us one step closer to understanding the remarkable universe we inhabit.

(Source- Journal: Contemporary Physics, Vol. 53, Issue 4- Our single UNIverse or a plethora of MULTIverses- By Eric Sheldon)

2.A) On the basis of your reading of the passage, answer the following with the most suitable option: (1x4=4)

i. Choose the option which is NOT supported by the passage.
a. The Multiverse theory has been experimentally proven.
b. The Many-Worlds Interpretation is linked to quantum mechanics.
c. Scientists continue to investigate theories related to the Multiverse.
d. Wormholes are hypothetical structures connecting regions of space-time.

ii. Select the idiom that conveys a similar meaning to the expression 'confined to science fiction' as used in paragraph 1.
a. out of this world b. a figment of imagination
c. under the weather d. at the drop of a hat

iii. Statement-A: Theories such as the Multiverse and wormholes continue to attract scientific attention.
Statement-R: These theories have already been conclusively verified through experiments.
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.

iv. The text describes the Multiverse as an 'intriguing' concept. The best illustration of this is that the idea is _____
a. very boring and lacks any creative depth.
b. extremely simple and easily explained to all.
c. highly controversial and widely disliked.
d. fascinating and captures deep scientific interest.

2.B) Answer the following questions: (1x4=4)

v. The author describes the Multiverse as a concept that lies between science and speculation. Explain.
vi. The scientific concept that appears to be least explored as per the bar graph, has significantly contributed to human understanding. Justify.
vii. According to the passage, the future acceptance of theories such as the Multiverse depends upon _____.
viii. The passage implies that mathematical possibility and practical feasibility are not necessarily the same. (True/False)

3. Read the following passage carefully: (8)

1. Moringa oleifera, popularly known as the Miracle Tree or Drumstick Tree, is one of the most nutritious plants found in tropical and subtropical regions. Native to the foothills of the Himalayas in India, it is now cultivated in many countries across Asia, Africa and South America. Almost every part of the tree, including its leaves, flowers, pods and seeds, has nutritional or medicinal value.

2. Moringa thrives in warm climates and grows well in sandy or loamy soil with good drainage. It is highly drought-resistant and requires very little water once established, making it an environmentally sustainable crop. India is the world's largest producer of Moringa, with Tamil Nadu, Karnataka, Andhra Pradesh and Maharashtra being the major cultivating states. Its ability to grow rapidly under harsh conditions has earned it recognition as a ‘tree for the future’.

3. Moringa leaves are exceptionally rich in vitamins A, C and E, calcium, iron, potassium and high-quality protein. They help strengthen immunity, improve digestion and support bone health. The leaves are dried into powder, consumed as herbal tea or added to soups, smoothies and salads. Moringa seed oil is widely used in skincare products because of its antioxidant and moisturising properties. The seeds are also capable of purifying contaminated water by removing impurities naturally.

4. Owing to its remarkable nutritional benefits and sustainable cultivation, Moringa has gained global popularity. Health experts recommend it as a natural supplement to combat malnutrition, while researchers continue to explore its potential in preventing lifestyle diseases. Its growing demand in the food, pharmaceutical and cosmetic industries has made Moringa an economically valuable crop for farmers.

(Source – Adapted from research published by the Food and Agriculture Organization and the National Institute of Nutrition, India)

3.A On the basis of your reading of the above passage, make notes using headings and sub-headings. Use recognizable abbreviations wherever necessary. Suggest a suitable title for the passage. (5)
3.B Write a summary of the above passage in not more than 50 words using the notes made by you. (3)

SECTION – B (GRAMMAR & CREATIVE WRITING SKILLS) (23 Marks)

Typology	Grammar & Creative Writing Skills	Conceptual understanding, application of rules, knowledge, reasoning, comprehension, grammatical accuracy, appropriacy of style and tone, using appropriate format and fluency, analysis, inference, evaluation, creativity and synthesis

II. GRAMMAR

(4) A. Fill in the blanks using the correct form of the verbs given in the brackets. Attempt ANY TWO. (1X2=2 marks)

Last year, our school (a) _____ (organise) a campaign to promote environmental awareness. Since then, students (b) _____ (continue) to participate actively in various conservation activities. Experts believe that the initiative (c) _____ (inspire) many more schools to launch similar programmes in the coming years.

B. Complete the sentence using a suitable clause - (1X2=2 marks)

i) The young inventor continued modifying her prototype although _____.

ii) The school introduced a digital detox hour so that _____.

(5) Transform the following sentences as per the instructions given below: (1X3=3 marks)

i. Interviewer: How did you manage to remain calm during the emergency?
Volunteer: I focused on what needed to be done rather than on my fear.
The interviewer asked the volunteer how she had managed to remain calm during the emergency. The volunteer replied that _____. (Change to reported speech)

ii. An environmental report states:

Volunteers are restoring the wetland that was damaged by years of pollution.
(Rewrite the sentence in the passive voice)

iii. The documentary was too thought-provoking to be forgotten easily. (Rewrite using so…that.)

III. CREATIVE WRITING SKILLS

(6). Attempt ANY ONE of the two, in about 50 words. 3

A. You are Dr. Alok Sharma, a university professor residing in New Delhi. As a conscious and eco-friendly citizen, you wish to sell your well-maintained petrol car to upgrade to an electric vehicle (EV). Draft a suitable advertisement to be published in the classified column of a local newspaper giving all necessary details. **3**

OR

B. You are Raghav Malhotra, Secretary of the Green Meadows Residents' Welfare Association, Jaipur. The association is organizing a three-month free evening coaching programme for children from economically weaker sections. To run the programme successfully, you urgently require teacher volunteers for English, Mathematics, and Science. Draft a suitable advertisement to be published in the classified column of a local newspaper giving all necessary details. **3**

(7). Attempt ANY ONE of the two, in about 50 words. 3

A. Large quantities of edible food are wasted every day at weddings, social gatherings, restaurants and even in homes, while millions of people continue to suffer from hunger. To address this issue, your NGO has launched the campaign 'Every Grain Counts'. As a volunteer with the NGO, design an attractive poster to create awareness about preventing food wastage. Include a catchy slogan and relevant details. **3**

OR

B. In recent times, increasing academic pressure and prolonged screen exposure have been adversely affecting the mental well-being of students. As the Assistant to the School Counsellor, you have been entrusted with the responsibility of creating an awareness poster on this issue. Design a poster using catchy slogans, relevant visuals and a positive tone to make the message impactful. **3**

(8). Attempt ANY ONE of the two, in about 120-150 words. 5

A. You are the Chief Speaker at a Youth Awareness Programme organised by your school. The theme of the programme is 'True Patriotism: Doing Our Duty for the Nation'. Deliver a speech highlighting how young citizens can demonstrate patriotism through responsible actions and everyday civic duties taking clues from the inputs given below. **5**

- patriotism beyond words
- performing one's duties
- responsible citizenship
- serving society
- protecting the nation's future
- responsible digital citizenship

- role of youth

OR

B. Despite various municipal awareness drives, open dumping and improper waste disposal remain major urban hazards, leading to health risks and environmental degradation. Draft a speech to be delivered at a Youth Civic Forum on 'Smart Waste Management: Bridging the Gap Between Civic Infrastructure and Citizen Responsibility' based on the verbal input provided. **5**

- urban waste crisis, modern systems, poor outcomes
- open dumping & clogged drains
- no waste segregation, recycling rendered ineffective
- Three-bin segregation, smart waste technology
- GPS monitoring, rewards for zero-waste homes
- infrastructure & civic discipline
- youth as change-makers

(9). Attempt ANY ONE of the two, in about 120-150 words. 5

A. With easy access to health information on the internet, many people now search their symptoms online and try to diagnose illnesses or take medicines without consulting qualified healthcare professionals. Concerned about this growing trend among teenagers and the general public, the debating society of your school has decided to organise a debate to mark the National Health Awareness Month. As a student of the school, prepare a debate in favour or against the motion on the topic- 'Google-guided self-diagnosis and self-treatment are dangerous practices that must be discouraged'. You may take help from the following cues. **5**

Favour-
- risk of wrong diagnosis
- incorrect medication can be harmful
- health decisions require personalised care

Against-
- internet improves health awareness
- useful for minor health concerns
- encourages preventive care

OR

B. You are participating in an Inter-House Debate Competition organised by your school on the occasion of Digital Literacy Week. The motion for the debate is: 'Becoming a social media influencer is a sustainable and reliable long-term career choice for today's youth '. Prepare a debate either in favour or

against the motion based on the clues provided. Present logical arguments, relevant examples and conclude with a persuasive statement. **5**

Favour- - digital economy - high income potential - global opportunities - positive impact Against- - income instability - job insecurity - mental health risks - privacy concerns - platform dependence

SECTION – C (LITERATURE) (31 Marks)

Typology	Literature	Recalling, reasoning, appreciating literary conventions, inference, analysis, creativity with fluency and critical thinking

IV. Reference to the Context

(10) Read the given extract carefully and answer the questions that follow: (1x3=3 marks)

A. The sea holiday
Was her past, mine is her laughter. Both wry
With the laboured ease of loss.
Now she's been dead nearly as many years
As that girl lived. And of this circumstance
There is nothing to say at all.
Its silence silences."

i. Select the option which uses the same poetic device as used by the poet in line-3.
a. Speech is silver, but silence is gold. b. Many are called, but few are chosen.
c. To err is human; to forgive, divine. d. Parting is a sweet sorrow.

ii. Explain the phrase 'silence silences'.

iii. The poet moves from _____.
a. a joyful memory to the painful reality of loss
b. a painful memory to the comfort of the present
c. a personal memory to an appreciation of nature
d. remembering her mother to celebrating childhood

OR

B. When did my childhood go?
Was it the time I realised that adults were not
All they seemed to be,
They talked of love and preached of love,
But did not act so lovingly,

Was that the day!

i. The contrast between "talked of love" and "did not act so lovingly" highlights _____.

ii. The poet's tone in these lines is mainly:
a. celebratory b. humorous
c. disappointed and thoughtful d. angry and aggressive

iii. Why is this realisation connected with the loss of childhood?
a. Children are forced to grow up.
b. Childhood ends only at a certain age.
c. Children dislike adults and what they preach.
d. Children usually see the world as perfect and innocent.

(11) Read the given extract carefully and answer the questions that follow: (1x3=3 marks)

A. Professor Gaitonde told Rajendra Deshpande about his strange experience. Rajendra listened carefully and then explained the incident using scientific ideas related to catastrophe theory and the concept of parallel worlds. He suggested that the professor might have experienced a transition into a different reality where history had taken another path. However, Rajendra also admitted that science could not provide a complete explanation for everything that had happened.

i) Why did Rajendra Deshpande explain the experience using scientific concepts?
a. to dismiss the professor's experience
b. to provide a logical explanation
c. to prove history was false
d. to confuse Professor Gaitonde

ii) The reference to catastrophe theory suggests that _____.

iii). The ending of the chapter leaves the reader with the idea that_____.
a. human perception can completely alter the course of history
b. some experiences challenge our understanding of reality
c. scientific explanations can resolve all mysteries of the past
d. historical events can always be explained through reasoning

OR

B. When he finally reached the mummy, though, he ran into trouble. The ritual resins had hardened, cementing Tut to the bottom of his solid gold coffin. 'No amount of legitimate force could move them,' Carter wrote later. 'What was to be done?' The sun can beat down like a hammer this far south in Egypt, and Carter tried to use it to loosen the resins.

i. Why does the author specifically use the word 'legitimate' in the phrase "no amount of legitimate force could move them"?
a. to suggest that Carter lacked the legal authority to move the pharaoh
b. to emphasize that all scientifically acceptable and careful methods had failed
c. to show that Carter was afraid of breaking Egyptian antique laws
d. to imply that the workers were not using enough physical strength

ii. What does Carter's initial decision to use the scorching desert sun to melt the resins reveal about his methodology?
a. He wanted to save time by avoiding manual labour.

b. He lacked proper steel chisels needed to cut the hardened gold.
c. He was superstitious and wanted nature to decide the mummy's fate.
d. He preferred non-invasive solutions before resorting to destructive tools.

iii. Carter's primary objective in writing, "What was to be done?" in his defense was_____ .

(12) Read the given extract carefully and answer the questions that follow: (1x4=4 marks)

A. I looked at the woollen tablecloth. I followed the lines of the pattern. Somewhere on the edge there should be a burn mark that had never been repaired. My fingers grew warm with rubbing. I followed the lines of the pattern. The girl poured tea from a white pot. It had a gold border on the lid, I remembered. She opened a box and took some spoons out. 'That's a nice box.' I heard my own voice. It was a strange voice. As though each sound was different in this room. 'Oh, you know about them?' She turned round and brought me some tea. She laughed. 'My mother says it is an antique. We've got lots more.' She pointed round the room. 'See for yourself.' I had no need to follow her hand. I knew which objects she meant. I looked at the still life gallery with the tea-table. As a child I had always fancied the apple on the pewter plate.

i) The narrator does not need to follow the girl's hand because her identification of the objects relies entirely on her own _____ rather than the girl's guidance.

ii) State whether true or false:
Statement: The narrator confirms the identity of the woolen tablecloth by visually spotting the unrepaired burn mark right away.

iii) The contrast between the narrator's childhood fancy for the pewter plate and the girl's casual boast about 'antiques' highlights a shift from_____.
a. pure emotional value to shallow material ownership
b. high-class lifestyle to complete financial poverty
c. artistic appreciation to historical research
d. childhood ignorance to adult greed

iv) The narrator's physical action of rubbing the pattern until her 'fingers grew warm' represents her subconscious desire to:
a. clean the dirty tablecloth out of habit.
b. prove to the girl that the tablecloth belongs to her.
c. check the quality and authenticity of the wool fabric.
d. reconnect with the warmth of her past life and dead mother.

OR

B. Your King appears to be a melon.
How did this happen?', they say, 'Well, on
Account of customary choice.
If His Majesty rejoice
In being a melon, that's OK
With us, for who are we to say
What he should be as long as he
Leaves us in Peace and Liberty?'
The principles of laissez faire
Seem to be well-established there.

i) The selection of a melon as king is an example of:

a) realistic leadership b) logical decision-making
c) absurdity and satire d) successful democracy

ii) 'customary choice' here refers to a choice made_____.
a) through careful reasoning b) on established tradition
c) through democratic voting d) to meet an immediate need

iii) The phrase "laissez faire" means _____.

iv) The citizens claiming to value liberty, yet accepting a completely meaningless ruler without questioning the situation is an example of Irony. True or False?

13. Answer the following questions in about 40-50 words each: (2X3=6 marks)

a) Why does the poet describe the sea as 'terribly transient' while the photograph remains unchanged? What larger philosophical idea about life does this contrast convey? (A Photograph)

OR

The rain remains 'altogether changed, and yet the same'. Analyse this paradox and explain how it reflects the continuity of life despite constant transformation. (The Voice of the Rain)

b) The grandmother never openly complains about the growing distance between herself and the narrator. How does her restraint make her character more poignant and powerful? (The Portrait of a Lady)

OR

How did Tutankhamun's name change serve as a calculated political and religious strategy rather than a mere personal preference? (Discovering Tut: The Saga Continues)

14. Answer ANY ONE of the following questions in about 40-50 words: (1x3=3 marks)

a) How does the narrator's visit to the house at 46 Marconi Street change her understanding of the relationship between material possessions and memories? (The Address)

OR

b) Uncle Khosrove's repetitive catchphrase is often seen as comic relief. What does a deeper analysis reveal about his psychological state? (The Summer of the Beautiful White Horse)

15. Answer ANY ONE of the following questions in about 120-150 words: (1x6=6 marks)

a) The chapter 'We Are Not Afraid to Die... If We Can All Be Together' and the poem 'Father to Son' explore family relationships in different situations. While one presents a family united in the face of danger, the other portrays emotional distance between a father and his son. Compare and contrast how the two texts highlight the importance of family bonds and communication. What message do they convey about nurturing relationships within a family? Support your answer with evidences from both the texts.

OR

b) The poem 'The Laburnum Top' by Ted Hughes and the travelogue 'The Silk Road' present nature as a powerful and meaningful presence. While the poem celebrates the vitality and beauty of nature through the interaction between the goldfinch and the laburnum tree, the prose highlights the grandeur, serenity

and challenges of the natural landscape of the Himalayas and Tibet. Compare how nature is portrayed in the two texts. Substantiate with evidences from both texts.

16. Answer ANY ONE of the following questions in about 120-150 words: (1x6=6 marks)

a) Towards the end of the chapter 'Birth' Dr. Andrew says, "I have done something at last." Imagine you are Dr. Andrew. After returning home that night, you feel emotionally overwhelmed by the events of the day. Write a diary entry expressing your thoughts and feelings about the successful delivery of the baby, saving the newborn's life, and how the incident restored your confidence and renewed your faith in the medical profession.

OR

b) The children in J.B. Priestley's 'Mother's Day' are products of an urban, convenience-driven lifestyle that weakens emotional bonds within the family. Critically examine this statement by analyzing the attitudes and behaviour of Cyril and Doris. To what extent does Priestley's portrayal of metropolitan children remain relevant in the context of present-day urban society? Substantiate your answer with suitable textual references and contemporary examples.

ENGLISH CORE
Marking Scheme and Hints to Solutions

Note:

1. The marking scheme provides suggested value points and not the complete answers.
2. Any other relevant answer not given herein but given by the candidate be also suitably rewarded.

Q.No.	Value Points/Key	Marks allotted to each value point/Key point	Total Marks
	SECTION-A (READING SKILLS) (26 MARKS)		
1.	A. i. b) Her recovery depended greatly on her will to live. ii. b) healing power of selfless sacrifice and hope iii. d) resignation iv. c) A is true but R is false. v. a) She dismissed the suggestion as unrealistic.	1 1 1 1 1	5
	B. vi. The doctor recognises that Johnsy's psychological condition is the decisive factor in her recovery. Her complete surrender to despair and loss of the will to live have diminished the effectiveness of medical treatment. He believes that unless she regains hope and a desire to survive, no amount of medicine can ensure her recovery. vii. The irony lies in the fact that Behrman spent his entire life dreaming of painting a masterpiece but never did so. His true masterpiece turned out to be the painted ivy leaf, which was never displayed in an art gallery but instead saved Johnsy's life, though it cost him his own. viii. Sue constantly tried to cheer Johnsy with pleasant conversation and her sketches/She informed Behrman about Johnsy's condition in the hope of helping her regain the will to live. ix. Yes, I agree that hope can influence a person's recovery from adversity. When Johnsy sees the leaf surviving the storm, she regains her hope and will to live. This renewed optimism helps her overcome despair and contributes to her recovery. x. triumph/accomplishment (any other suitable answer)	1 1 1 1.5+1.5 1	5
2.	A. i. a. The Multiverse theory has been experimentally proven. ii. b. a figment of imagination iii. c. A is true but R is false. iv. d. fascinating and captures deep scientific interest.	1 1 1 1	4
	B. v. The Multiverse is presented as a scientifically reasoned hypothesis supported by theoretical physics and mathematical models. However, since it lacks direct experimental evidence, it remains speculative, existing at the intersection of scientific inquiry and imagination. vi. As per the bar graph, wormholes are the least explored but their research has significantly expanded our understanding of cosmology and quantum physics. vii. their verification through future scientific observations and experimental evidence/future scientific discoveries/advances in technology enabling experimental confirmation viii. True	1 1 1 1	4
3.	(A) Note Making Title- Moringa – The Miracle Tree (Any other suitable title) Numbering and indenting	 1	5

	Abbreviations/ Symbols Notes/Content	1 1 2	
	1. nomenclature & origin 1.1 botanical name – Moringa oleifera 1.2 known as Miracle Tree/Drumstick Tree 1.3 native to Himalayan foothills of India 2. cultivation 2.1 places of cultivation 2.1.1 Asia 2.1.2 Africa & South America 2.1.3 major Indian states – T.N., Karnataka, A.P. & Maharashtra 2.2 growing conditions 2.2.1 warm climate 2.2.2 sandy/loamy soil with good drainage 2.2.3 drought-resistant & requires little water 3. nutritional value 3.1 rich in vit. A, C & E 3.2 contains calcium, iron, potassium & protein 3.3 boosts immunity, digestion & bone health 4. uses 4.1 medicinal & cosmetic Uses 4.1.1 used as herbal tea & food supplement 4.1.2 seed oil used in skincare products 4.1.3 antiox. & moisturising properties 4.2 other Uses 4.2.1 seeds purify contaminated water 4.2.2 added to soups, salads & smoothies 4.2.3 helps combat malnutrition 5. commercial importance 5.1 demand increasing globally 5.2 used in food, pharmaceutical & cosmetic industries 5.3 economically valuable crop for farmers Key to Abbreviations: T.N. – Tamil Nadu A.P. – Andhra Pradesh Vit. – Vitamins Antiox. – Antioxidant		
	(B) Summary: The summary should include all the important points given in the notes. Content Expression		3
	SECTION – B (GRAMMAR & CREATIVE WRITING SKILLS) (23 marks)	2 1	
4.	A. Fill in the blanks using the correct form of the verbs given in the brackets. (Attempt any two) (a) organised (b) have continued (c) will inspire		4

	B. Complete the sentence using a suitable clause-	1	
	i) The young inventor continued modifying her prototype although several earlier attempts had failed. (any other suitable answer)	1 1	
	ii) The school introduced a digital detox hour so that students could engage in meaningful face-to-face interactions. (any other suitable answer)	1	
	Transform the following sentences as per the instructions given below:		
5.	i. The volunteer replied that she had focused on what needed to be done rather than on her fear.	1	3
	ii. The wetland that was damaged by years of pollution is being restored by volunteers.	1	
	iii. The documentary was so thought-provoking that it could not be forgotten easily.	1	
	Advertisement (Classified)		
	A. Format: The format should include: Box, Heading, Contact details	1	
6.	Content Expression Value Points:		3
	Heading - FOR SALE	1 1	
	• specify the exact car model, year of manufacturing and fuel type • include low mileage, ownership and pristine maintenance status • state the reason for selling • conclude with a pricing stance • other requirements (if any) • Contact details – name, telephone no., address (any other relevant details)	1	
	OR		
	B. Format: The format should include: Box, Heading, Contact details Content Expression Value Points:		
	Heading - SITUATION VACANT	1 1	
	• teacher volunteers needed • specify subjects • free coaching programme • purpose, duration • preferred qualification, experience • last date of applying • Contact details – name, telephone no., address • (any other relevant details)	1	
	Poster		
	A. Format: The format should include: Box, Heading, details of issuing authority		

7.	Content		3
	Expression		
	Value points:		
	- relevant slogans to prevent food wastage		
	- solutions and suggestions	1	
	- steps to create awareness		
	- issuing authority	1	
	- (any other relevant details)	1	
	OR		
	B. Format:		
	The format should include: Box, Heading, details of issuing authority		
	Content		
	Expression		
	Value points:		
	- relevant slogans to encourage students	1	
	- solutions and suggestions		
	- consultation details	1	
	- issuing authority	1	
	- (any other relevant details)		
	Speech		
	A. Format- salutation, introduction of self and topic, thank you		
	Content		
8.	Expression		5
	- Grammatical accuracy, appropriate words, spellings		
	- Coherence and relevance of ideas and style.		
	Value points:		
	- not limited to slogans, flags or ceremonies	1	
	- honesty, discipline, punctuality and accountability	2	
	- obeying laws and respecting public property	2	
	- helping others and standing up against injustice		
	- environmental conservation and sustainable living		
	- avoiding misinformation and promoting harmony online		
	- using education, skills and creativity for national development		
	- (any other relevant details)		
	OR		
	B. Format- salutation, introduction of self and topic, thank you		
	Content		
	Expression		
	- Grammatical accuracy, appropriate words, spellings		
	- Coherence and relevance of ideas and style.		
	Value points:	1	
	- urban waste crisis despite modern systems	2	
	- open dumping, toxic fumes, and choked drains persist in our cities inspite of high-tech infrastructure	2	
	- failure to segregate waste at home renders advanced recycling facilities useless.		
	- prevalence of passive mindset- believing garbage management is solely the government's responsibility		
	- implementation of mandatory three-bin source segregation system		
	- adoption of tech-driven tracking		
	- introduction of incentive programs or tax rebates		

9.	- urging youth to act as bridge - (any other relevant details) Debate A. Format- salutation, specification whether in favour or against, introduction of self and topic, thank you Content Expression - Grammatical accuracy, appropriate words, spellings - Coherence and relevance of ideas and style. Value points: Favour- - online information cannot replace medical expertise - risk of wrong diagnosis - incorrect medication can be harmful - promotes unnecessary anxiety - delay in proper treatment - health decisions require personalised care - (any other relevant point) Against- - internet improves health awareness - helps patients ask better questions - useful for minor health concerns - provides access to health education - encourages preventive care - (any other relevant point) **OR** B. Format- salutation, specification whether in favour or against, introduction of self and topic, thank you Content Expression - Grammatical accuracy, appropriate words, spellings - Coherence and relevance of ideas and style. Value points: Favour - growing digital economy and high earning potential - flexible, independent and multiple career avenues - global reach and positive social impact - skill development - receive results without hassle - (any other relevant point) Against - difficult in remote areas - lack of job security and unstable earning - highly competitive field - mental health concerns and privacy issues - overdependence on platforms - (any other relevant point)	1 2 2 1 2 2	5

	SECTION C (LITERATURE) (31 Marks)		
	Reference to the Context		
10.	A. i. d. Parting is a sweet sorrow. ii. The phrase suggests that the mother's death and photograph's silent reminder of the loss leaves the poet speechless with grief and reflection. The photograph evokes emotions so profound that words become inadequate. iii. a. a joyful memory to the painful reality of loss	1 1	3
	OR		
	B. i. hypocrisy of adults/difference between what adults preach and practise ii. c. disappointed and thoughtful iii. d. Children usually see the world as perfect and innocent.	1 1	
	Reference to the Context	1	
11.	A. i. b. to provide a logical explanation ii. The reference to Catastrophe Theory suggests that small changes at crucial points can produce major and irreversible consequences/A small change in circumstances can lead to a sudden, dramatic shift, creating an entirely different outcome or reality. iii. b. some experiences challenge our understanding of reality	1 1 1	3
	OR		
	B. i. b. To emphasise that all scientifically acceptable and careful methods had failed. ii. d. He preferred non-invasive solutions before resorting to destructive tools. iii. to justify his controversial decision to chisel the mummy to future critics	1 1 1	
	Reference to the Context	1	
12.	A. i. past memories / prior familiarity / recognition ii. False iii. a. pure emotional value to shallow material ownership. iv. d. reconnect with the warmth of her past life and dead mother.	1 1 1 1	4
	OR		
	B. i. c) absurdity and satire ii. b) A choice made on established tradition iii. allowing things to happen without much interference iv. True	1 1 1	
13.	**Answer the following questions in about 40-50 words each:** a)	1	2x3=6
	- It is always changing—its waves, tides, and appearance never remain the same.		3

	- The contrast highlights the irony that nature, though seemingly eternal, is constantly changing, while an inanimate photograph appears permanent. - It suggests that time transforms everything in real life, but memories captured in photographs remain frozen. - The poet reflects that human life is temporary and ever-changing, whereas art and memories can outlive the passing of time. - (any other relevant point) - (Any two)	Content-2 Expression- 1	
	OR		
	- The paradox celebrates nature's timeless continuity. - Rain transforms into vapour, clouds and showers, constantly altering its form while preserving its eternal essence. - Like life itself, true identity survives every transformation, proving that change is not an end but the very rhythm through which existence renews itself. - (any other relevant point) - (Any two)	Content-2 Expression- 1	3
	b)		3
	- Her silence reflects wisdom, maturity, and emotional strength. - Her quiet acceptance makes her suffering more touching than open complaints would. - Her restraint leaves a lasting emotional impact on the reader, making her character both poignant and powerful. - (any other relevant point) - (Any two)	Content-2 Expression- 1	
	OR		3
	- Replaced 'Aten' with 'Amun' to formally abandon his predecessor Akhenaten's radical monotheism and align himself with the powerful traditional priesthood. - Signaled the immediate restoration of the ancient polytheistic faith to heal deep social divisions and soothe a traumatised population. - Rebranded his public identity from 'servant of Aten' to 'living image of Amun' to gain the political backing needed to stabilise his vulnerable dynasty. - (any other relevant point) - (Any two)	Content-2 Expression- 1	1x3=3 3
14.	**Answer the following questions in about 40-50 words each:** a) -The narrator realises that material possessions lose their value with time, but the memories attached to them remain precious. - The old house at 46 Marconi Street brings back vivid memories of her childhood and family life. - The narrator recognises that memories cannot be bought, replaced, or taken away, unlike material belongings. - The experience teaches that emotional bonds and cherished memories are more enduring and valuable than material possessions. - (any other relevant point) - (Any two)	Content-2 Expression- 1	3

	OR		
	b) - His irritable, impatient nature and his constant refrain stems from the profound grief of losing his homeland. - By dismissing all current problems as insignificant, he minimises his immediate reality because nothing can compare to the tragedy of his lost home. - He represents the ancestral source of the family's eccentricities, showing how displacement manifests as aggressive non-conformity in the older generation. - Despite his roaring voice and hostile exterior, his tolerance of Mourad's antics shows a hidden, gentle acceptance of the youth's need for expression. - (any other relevant point) - (Any two)	Content-2 Expression- 1	1x6=6 6
15.	**Answer the following question in about 120-150 words:** a) Both texts revolve around the theme of family relationships, but in contrasting circumstances. Both texts emphasise that family is a source of emotional strength, but relationships must be nurtured through love, trust, understanding, and open communication. In 'We Are Not Afraid to Die... If We Can All Be Together' the family remains united, supportive, and courageous even during a life-threatening sea voyage. - The parents protect and encourage their children, while the children display faith, resilience, and emotional strength. - The family's love, trust, and cooperation help them overcome adversity. In 'Father to Son' the father feels emotionally disconnected from his son despite living under the same roof. - The poem highlights the generation gap, lack of communication, and the pain of strained relationships. - The father sincerely wishes to rebuild the bond but struggles due to mutual misunderstanding. Strong family bonds help individuals face challenges, while neglecting communication can create emotional distance. Mutual respect, empathy, and regular dialogue are essential for maintaining healthy family relationships. - (any other relevant point) - (Any three and at least one from each text)	Content-3 Expression- 3	
	OR		6
	b) Both texts present nature as more than a passive setting; it influences the mood, action and experience. - Hughes focuses on nature's vitality, harmony and interconnectedness, whereas Middleton emphasises its grandeur, serenity, isolation and challenges. - The Laburnum Top presents nature through a brief, concentrated moment, while The Silk Road explores it through an extended physical journey. - In 'The Laburnum Top' the silent, lifeless tree comes alive with the arrival of the goldfinch, symbolizing the life-giving power of nature. - The poem highlights the interdependence and harmony within the natural world. - In 'The Silk Road' the majestic mountains, rivers, vast landscapes, and changing weather reflect nature's grandeur as well as its harshness. - In both, nature inspires wonder, but Hughes finds wonder in a small everyday scene, while Middleton discovers it in an immense and	Content-3 Expression- 3	

	unfamiliar landscape. - Together, the texts reveal nature's contrasting dimensions—delicate yet powerful, nurturing yet demanding, tranquil yet full of energy. - (any other relevant point) - (Any three and at least one from each text)		1x6=6
	Answer the following question in about 120-150 words:		6
16.	a) - Diary format (Date, Time, first-person narration). - Expression of exhaustion and emotional satisfaction after the incident. - Reflection on earlier frustration, boredom, and lack of purpose in medical practice. - Description of the challenging delivery and the newborn appearing lifeless. - Feelings of determination, hope, and relief after successfully reviving the baby. - Sense of achievement on saving both the mother and the child. Renewed faith in the medical profession and confidence in his abilities. -Commitment to continue serving humanity with compassion, dedication, and responsibility. - (any other relevant point) - (Any three)	Content-3 Expression- 3	
	OR		6
	b) - Cyril and Doris symbolise an urban generation that values comfort and convenience over compassion and gratitude. - They treat their mother as a domestic caretaker rather than the emotional anchor of the family, exposing the erosion of familial warmth. - Their indifference towards Mrs. Pearson's relentless sacrifices reflects a growing culture of entitlement and dependence. - Through humour and role reversal, Priestley holds a mirror to a society where relationships are overshadowed by selfishness and material comforts. - The play resonates strongly today as hectic metropolitan lifestyles, digital distractions and individualistic attitudes often distance children from meaningful family interactions. - Priestley reminds us that respect, gratitude and emotional reciprocity are the true pillars of a harmonious family. A home flourishes not through convenience, but through empathy, shared responsibilities and mutual appreciation. - (any other relevant point) - (Any three)	Content-3 Expression- 3	

SAMPLE QUESTION PAPER (2026-2027)

PHYSICS

CLASS – XI

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

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.

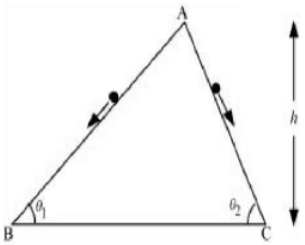
(4) Section A contains sixteen questions, twelve MCQ and four assertion reasoning based of 1 mark each, Section B contains five questions of two marks each, Section C contains seven questions of three marks each, Section D contains two case study-based questions of four marks each and Section E contains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

(5) There is no overall choice. However, an internal choice has been provided in two questions in Section B, one question in Section C 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.

SECTION-A

1. Two inclined frictionless tracks, one gradual and the other steep meet at A from where two stones are allowed to slide down from rest, one on each track (stone I along AB and stone II along AC) as shown in the figure. 1



Which of the following statements is correct?

(A) Both stones reach the bottom at the same time but with different speeds.

(B) Both stones reach the bottom with the same speed, and stone I reaches earlier than stone II**.**

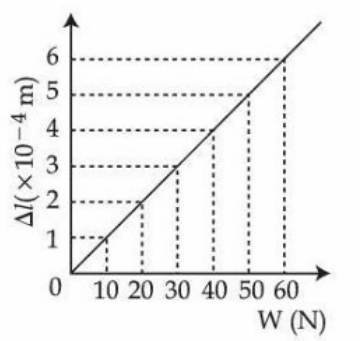
(C) Both stones reach the bottom with the same speed, and stone II reaches earlier than stone I**.**

(D) Both stones reach the bottom at the same time and with the same speed.

2. The dimensions of the product of two physical quantities P and Q are [M L^2 T^{-3}] while those of $\frac{P}{Q}$ are [M T^{-1}]. Then quantities P and Q respectively are **1**

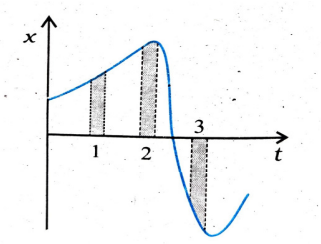
(A) Force and displacement
(B) Momentum and displacement
(C)Work and velocity
(D) Force and velocity

3. Figure represents the extension (Δl) of a wire of length 1 meter, suspended from the ceiling of the room at one end with a load W connected to the other end. If the cross-sectional area of the wire is 10^{-5} m^2 then the Young's modulus of the wire in N/m^2 is: **1**



(A) 1.0 x 10^{11}
(B) 2.0 x 10^{11}
(C) 1.0 x 10^{10}
(D) 2.0 x 10^{10}

4. Figure shows the x-t plot of a particle in one -dimensional motion. Three different equal intervals of time are shown. Which of the following statement is true? **1**



(A) Average speed is least in time interval 3 and average velocity is positive.
(B) Average speed is least in time interval 2 and average velocity is negative.
(C) Average speed is greatest in time interval 3 and average velocity is negative.
(D) Average speed is greatest in time interval 1 and average velocity is positive.

5. When one moves from a point 16 km below the earth's surface to a point 16 km above the earth's surface. The change in g is approximately α %. The value of α is (given: radius of the earth = 6400 km.) 1

(A) 0.12

(B) 0.25

(C) 0.50

(D) 0.75

6. A soap bubble initially has radius 'a'. Its radius is increased to '2a' during expansion. Assuming the surface tension remains constant, the increase in the surface energy of the soap bubble is: **1**

(A) $24\pi a^2\sigma$

(B) $48\pi a^2\sigma$

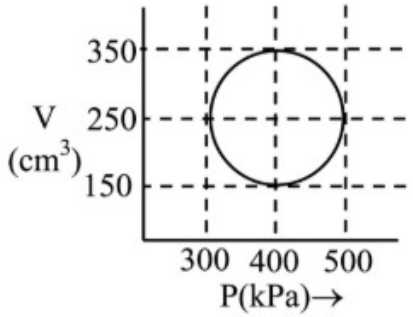
(C) $36\pi a^2\sigma$

(D) $12\pi a^2\sigma$

7. Two balls are projected from the same point in directions 30°and 60°with respect to the horizontal. The ratio of their initial velocities if they attain the same maximum height is- **1**

(A) √3: 1
(B) 1: √3
(C) 1: 1
(D) 3: 1

8. An ideal gas has undergone through the cyclic process as shown in the figure. Work done by the gas in the entire cycle is: (given π = 3.14) **1**



(A) 3.14 J

(B) 31.4 J
(C) 1.256 J
(D) 12.56 J

9. Two blocks of masses 5 kg and 2 kg are placed on **a** frictionless horizontal surface and connected by a light spring. An external kick gives a velocity of 14 m/s to the heavier block in the direction of the lighter one. The velocity gained by the centre of mass immediately after the kick is: **1**

(A) 10 m/s in the direction of kick.
(B) 10 m/s opposite to the direction of kick.
(C) 70 m/s in the direction of kick.
(D) 70 m/s opposite to the direction of kick.

10. A travelling harmonic wave is represented by

$y(x, t) = 2.0 \sin [20\pi t - 0.01\pi x + 0.4\pi]$

where x and y are in cm and time in s. The phase difference between oscillatory motion of two points separated by distance of 50 cm is **1**

(A) $\frac{\pi}{2}$ rad
(B) $\frac{\pi}{4}$ rad
(C) $\frac{\pi}{5}$ rad
(D) $\frac{\pi}{10}$ rad

11. Which of the following relationships between the acceleration 'a' and the displacement 'x' of a particle involve simple harmonic motion? **1**

a) $a = 0.1x$
b) $a = -0.1\ x^2$
c) $a = -0.1x$
d) $a = 0.1\ x^2$

12. If μ_s, μ_k and μ_r are coefficients of static friction, kinetic friction and rolling friction then, choose the correct option. **1**

a) $\mu_s = \mu_k = \mu_r$
b) $\mu_r < \mu_k < \mu_s$
c) $\mu_s < \mu_k < \mu_r$
d) $\mu_k < \mu_r < \mu_s$

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) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (B) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (C) Assertion is true but Reason is false. (D) Both Assertion and Reason are false.

13**. Assertion (A):** The work–energy theorem is valid for a variable force.

Reason (R): The work done by a variable force is equal to the area under the force–displacement graph**.** **1**

14. **Assertion (A):** A large spherical drop when breaks into smaller spherical drops, the temperature of these drops decreases**.**

Reason (R): The surface energy of the smaller spherical drop increases at the cost of internal energy. **1**

15. **Assertion (A):** In an oscillating table fan, the blades rotate about their own fixed axis, while the axis of rotation oscillates about a fixed pivot.

Reason (R): A body can undergo rotation about an axis that is itself changing direction with time. **1**

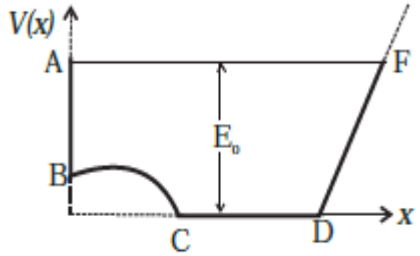
16. **Assertion (A):** The bulk modulus for a perfect rigid body is infinite.

Reason (R): The compressibility of the perfect rigid body is infinite. **1**

SECTION-B

17. If energy E, velocity V and time T are chosen as fundamental quantities, deduce the dimensional formula of surface tension.
2

18. A graph of potential energy V(x) vs. position x is as shown. A particle of energy E_0 is executing motion in it. Draw graph of kinetic energy K(x) versus position x for one complete cycle, AFA. Give reason for your answer. **2**

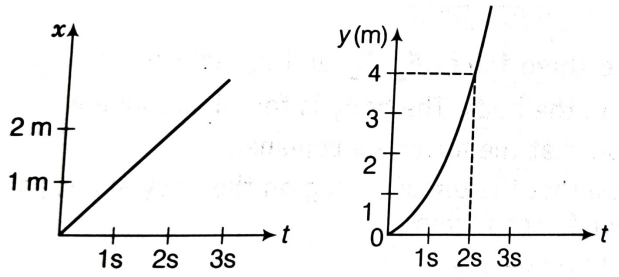


OR

18. Consider the one-dimensional motion of a particle with total mechanical energy E. Four different regions A, B, C, and D are characterized by different relations among the total energy E, potential energy V, and kinetic energy K. For each of the following cases, state whether the particle can be found in that region or not. Give reason for your answer.

Region A: V > E Region B: V < E Region C: K > E Region D: V > K **2**

19. Figure i) and ii) graphically show x-t and y-t variation of a body moving in two dimensions. If the body has a mass of 1 kg, find the magnitude and direction of the force acting on the body. **2**

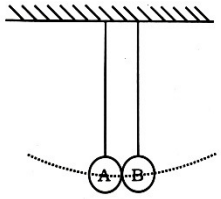


OR

19.A body of mass 1 kg travels according to the relation $x(t) = \alpha t + \beta t^2 + \gamma t^3$, where $\alpha = 3ms^{-1}$, $\beta = 4ms^{-2}$, $\gamma = 5ms^{-3}$

Find the force acting on the body at t = 2s. **2**

20. Two pendulums with identical bobs and lengths are suspended from a common support such that in rest position the two bobs are in contact. One of the bobs is released after being displaced by 30º so that it collides elastically head on with the other bob. **2**



(a) Describe the motion of the two bobs.

(b) Draw a graph showing variation in energy of either pendulum with time for $0 \leq t \leq 2T$, where T is the time period of each pendulum.

21. Explain why- **2**

(a) Two bodies are at different temperatures T_1 and T_2, if brought in thermal contact, then they do not necessarily attain the mean temperature.

(b) Bicycle pump gets heated up, when the piston is pushed down very fast.

SECTION-C

22.(i) In a two-dimensional motion, instantaneous speed is a positive constant.
In this context, state whether the given statement 'Displacements in equal time intervals are equal',
is True or False. Give reason for your answer.

(ii) An object moving with the speed of 6.25 m/s is decelerated at a rate given by-
$\frac{dv}{dt}$ = - 2.5 $\sqrt{v}$, where v is the instantaneous speed.
Calculate the time taken by the object to come to rest. **1+2**

23. Infinite bodies, each of mass 3kg are situated at distances 1m, 2m, 4m, 8m..... respectively on x-axis. What will be the resultant intensity of gravitational field at the origin? **3**

24. A mercury barometer kept inside a stationary elevator reads 76 cm of Hg. The elevator now starts accelerating upward with acceleration a.

(a) How will the reading of the barometer change? Explain with reason.

(b) Derive the relation between atmospheric pressure and the height of the mercury column for an elevator accelerating upward. **3**

OR

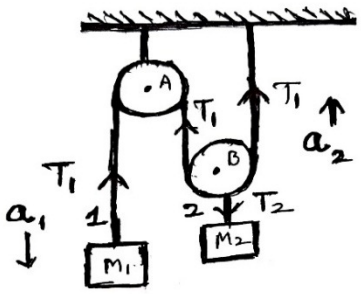
24. A small solid ball bearing is dropped into a tall vertical column of height h containing a viscous liquid.

(a) Sketch the graph showing the variation of the velocity (**v**) of the ball with time (**t**) as it falls through the liquid. Explain shape of the graph.

(b) What will happen if instead of ball bearing, a cricket ball is dropped in same vertical column?

3

25. Consider two blocks of masses m_1 and m_2 connected as shown in the given figure with massless pulleys using inextensible and massless strings 1 and 2. Find the tension produced in the two strings. **3**



26. The work of 146 kJ is performed in order to compress one kilo mole of a gas adiabatically and in this process the temperature of the gas increases by 7°C. Find the nature of the gas (monoatomic/diatomic/mixture of both) by showing necessary calculations.

(Given R=8.3 J mol $^{-1}K^{-1}$) **3**

27. Explain why-

(a) The speed of sound waves in air increases with increase in humidity.

(b) Change in temperature of the medium changes the wavelength of sound waves.

(c) Solids can support both longitudinal and transverse waves but only longitudinal waves can propagate in gases. **3**

28.(i) A gas mixture at thermal equilibrium consists of molecules of type P, Q and R with masses in the order of $m_P > m_Q > m_R$. Arrange the three types of molecules in increasing order of their

a) average kinetic energy.

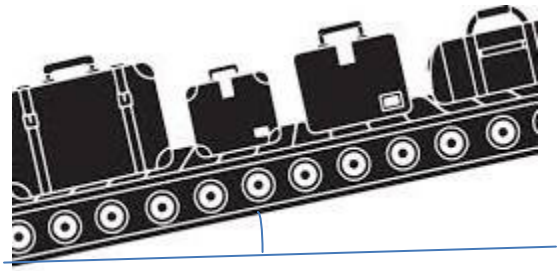
b) r.m.s speed.

(ii) Calculate the number of degrees of freedom of molecules of hydrogen in 1cc of hydrogen gas at NTP. **3**

SECTION-D

29. Conveyor belts are widely used at airports, shopping malls, mining, warehouses etc to transport material from one place to another with minimum human effort. Conveyor belt improve efficiency, reduce effort and ensure continuous movement of goods.

At an airport, trolley bag of mass *m* is placed on a moving rough inclined conveyor belt making an angle θ with the horizontal. The coefficient of friction between the conveyor belt and the trolley bag is μ. The frictional force between the belt and the trolley bag helps it accelerate until it attains the same speed as the belt. If friction is insufficient, the object slips on the belt. **(1x4=4)**



Figure

(I)**.** Which force is primarily responsible for making a trolley bag move along with a conveyor belt?

(A) Gravitational force
(B) Static frictional force
(C) Tension
(D) Normal reaction

(II) If the friction between the conveyor belt and the trolley bag becomes very small, the bag will

(A) move faster than the belt.
(B) remain at rest relative to the belt.
(C) move upward.
(D) slip backward relative to the moving belt.

(III) If a conveyor belt moves with constant speed, then trolley bag placed on it also moves with the same speed without slipping. Choose the correct statement.

(A) No friction acts on the trolley bag.
(B) Kinetic friction acts on the trolley bag.
(C) Static friction acts opposite to motion.
(D) Static friction acts in the direction of motion.

(IV) To transport heavier loads on a conveyor belt without the load slipping, which of the following is the most effective way?

(A) Decrease friction between the belt and the load.
(B) Increase the weight of the belt.
(C) Increase the coefficient of friction between the belt and the load.
(D) Reduce the speed of the belt to zero.

OR

(IV) What minimum force F, applied parallel to the incline in the upward direction, is required to keep the trolley bag at rest or move it upward with uniform speed?

(A) $mg(\sin\theta + \mu\cos\theta)$

(B) $mg(\sin\theta - \mu\cos\theta)$

(C) $mg / (\sin\theta + \mu\cos\theta)$

(D) $(\sin\theta - \mu\cos\theta)/mg$

30. Do you know, how food in restaurants, vaccines and blood samples in laboratories and other temperature-sensitive materials are preserved? Have you seen a deep freezer? A deep freezer, is a specialized appliance designed to store items at extremely low temperatures. Unlike regular refrigerators, deep freezers can maintain temperatures as low as -40°F (-40°C), making them ideal for long-term storage. Most deep freezers come with a thermostat that allows users to set and maintain the desired temperature. Advanced models may also include digital displays and alarms to alert users of temperature fluctuations.

A standard domestic or commercial chest deep freezer measures roughly 28 to 65 inches wide, 27 to 31 inches deep, and 33 to 35 inches tall. Its insulated walls typically range from 60 mm to 80 mm (2.4 to 3.1 inches) in thickness, utilizing high-density Polyurethane Foam (PUF) to minimize conductive heat transfer.

Based on the above information answer the following questions:

(I) Write one characteristic quality that PUF has in order to minimize heat transfer? **1**

(II) If the thickness of the insulating foam wall of a deep freezer is doubled, what happens to the rate of heat leakage into the freezer, assuming inside and outside temperatures remain constant? **1**

(III) Let the walls of deep freezer have an area of 2.5 square meters and a thickness of 60mm separates it from the surrounding. If the thermal conductivity of the PUF is 0.022 W/mK, calculate the rate of heat transfer by the material used in walls of deep freezer? (Given temperature of inside is -15^0C and outside is 35^0C)? **2**

OR

(III) A deep freezer wall of area A is made of two layers of thickness d_1 and d_2 and thermal conductivities K_1 and K_2. Find the effective thermal conductivity K_{eff} for a composite slab of total thickness $d_1 + d_2$? (Given that thermal resistance is R=d / KA) 2

SECTION-E

31.(i) A cricket fielder can throw the cricket ball with a speed v_0. If he throws the ball while running with speed u at an angle θ to the horizontal, find the
(a) effective angle to the horizontal at which the ball is projected in air as seen by an observer.
(b) time of flight of the ball

(ii) A gun can fire shells with maximum speed V_0 and the maximum horizontal range that can be achieved as $R = \frac{{V_0}^2}{g}$. If a target father away by distance Δx (beyond R) has to be hit with the same gun, show that it could be achieved by raising the gun to a height at least $h = \Delta x \left[1 + \frac{\Delta x}{R}\right]$ **2+3**

OR

31.(i) The speed of a particle moving along a circular path is increasing at a constant rate. Sketch the graph showing the variation of
(a) tangential acceleration with time.
(b) centripetal force with time.
(ii) A particle with velocity $u = -2\,\hat{\imath} + 4\,\hat{\jmath}$ m/s at t = 0 undergoes a constant acceleration of magnitude $3 m/s^2$ at an angle 120° from the positive direction of the x-axis. Find the magnitude and the direction (with respect to + x axis) of the particle velocity at t = 2 s. **2+ 3**

32. Two discs of moments of inertia I_1 and I_2 about their respective axes (normal to the disc and passing through the centre), and rotating with angular speeds ω_1 and ω_2, are brought into contact face to face with their axes of rotation coincident.

(i) Explain why the total angular momentum of the two-disc system remains conserved, when the rotating discs are brought into contact.

(ii) Derive an expression for the common angular speed attained by the two discs after they start rotating together with the same angular velocity.

(iii) Sketch the variation of the total rotational kinetic energy (K) of the system with time (t) from the instant the discs are brought into contact till they attain a common angular speed. Indicate the region where energy is dissipated. **1+2+2**

OR

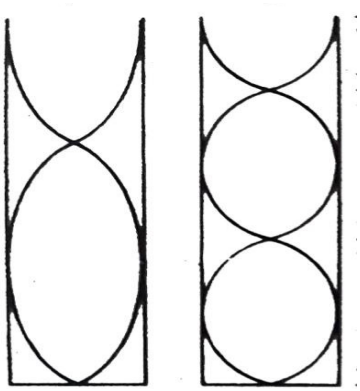
32. (i) Draw the vector diagram showing the relation of torque 'τ' with position vector 'r', applied force 'f 'and the angle 'θ' between the position vector and the applied force.

(ii) Resolve the applied force into its radial and tangential (transverse) components. Hence, prove that only the tangential component contributes to torque, while the radial component produces no torque.

(iii) A door is hinged along a vertical axis and can rotate freely about it. The weight of the door acts vertically downward through its centre of mass. Will the weight of the door produce any torque about the hinge axis? Justify your answer using the direction of the torque vector and the concept of the axis of rotation. **1+2+2**

33.(i) All harmonics are overtones but all over tones are not harmonic. Why?

(ii) Figures A and B show 2 vibrating modes of an air column having length 'L'. Find the ratio of frequencies of the two modes.



(A) **(B)**

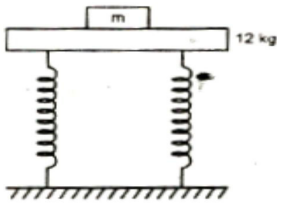
(iii) A stone is dropped into a well of depth 'h' and its splash is heard at the top of the well after an interval of 1.45 s. Calculate the depth of the well. Using the velocity of sound in air at room temperature equal to 332 ms^{-1}. **1+2+2**

OR

33. (i) The velocity (V) of a particle executing SHM varies with displacement (x) as given by the relation $4\ V^2 = 50 - x^2$

Find the value of displacement (x), when time period of oscillation is $\frac{x}{7}$ s (where x is in metre).

(ii)A tray of mass m =12 kg is supported by two identical springs of spring constant k as shown in the given figure. When the tray is pressed down slightly and released, it executes SHM with a time period of 1.5 s.



(a)Calculate the force constant of each spring.

(b) When another block of mass M (M > m) is placed on the tray, the period of SHM changes to 3 s. Find the mass M of the block. **2 + 3**

Physics Sample Paper Marking Scheme Class XI

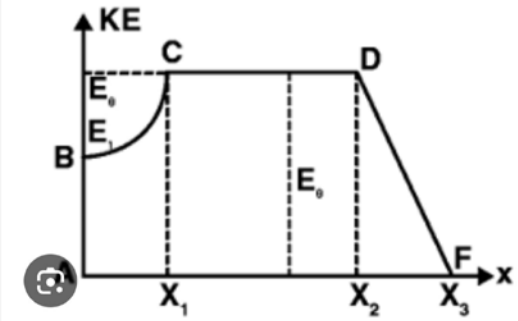
SECTION A

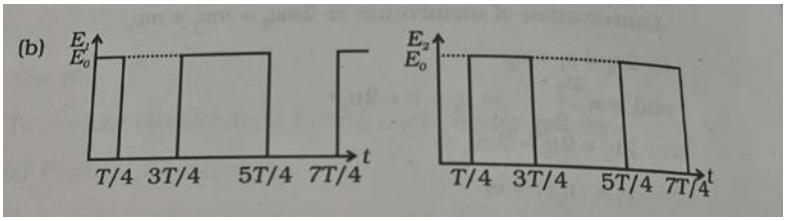
Q.No	Value Points / Expected Answers	Marks	Total Marks
1	(C)		1
2	(D)		1
3	(C)		1
4	(C)		1
5	(B)		1
6	(A)		1
7	(A)		1
8	(B)		1
9	(A)		1
10	(A)		1

11	(C)		1
12	(B)		1
13	(B)		1
14	(A)		1
15	(A)		1
16	(C)		1

SECTION B

Q.No	Value Points / Expected Answers	Marks	Total Marks
17	$\sigma = kE^aV^bT^c$ $MT^{-2} = k[ML^2T^{-2}]^a[LT^{-1}]^b[T]^c$ Equating the powers of a, b & c $a = 1$ $2a + b = 0$ $-2a - b + c = -2$ $\Rightarrow a = 1,\ b = -2,\ c = -2$ $\sigma = [EV^{-2}T^{-2}]$	½ 1 ½	2

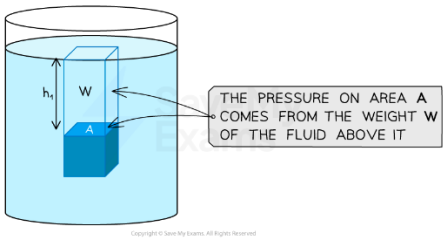
18	 $M \cdot E = K \cdot E + P \cdot E$ $E_0 = K \cdot E + V(x).$ $K \cdot E = E_0 - V(x).$ at $x = 0 \quad V(0) = E_0.$ $K \cdot E = 0.$ at $B \quad V(x) < E_0.$ $K \cdot E > 0.$ at C and $D \quad V(x) = 0.$ $K \cdot E = E_0.$ At $F \quad V(x) = E_0$ and $K \cdot E = 0.$ OR $V + K = E$ • **Region A** → not possible as V cannot be greater than total energy E • **Region B** → Possible as V can be less than E • **Region C** → Not possible as Kinetic energy cannot be greater than E • **Region D** → Possible as potential energy can be greater than kinetic energy.	½ ½ ½ ½ ½ ½ ½	2

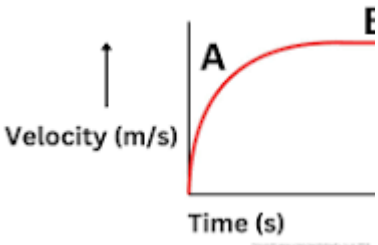
19	**Figure (i)** $x = t\ ;\ a_x = 0$ **Figure (ii)** $y = t^2\ ;\ a_y = 2\ \text{m/s}^2$ $v_y = 2t$ $a_y = \frac{dv_y}{dt} = 2$ $\therefore \vec{F} = m \times (a_x\hat{i} + a_y\hat{j})$ $= 1 \times (2\hat{j})$ $= 2\text{N along } y\text{-axis}$ OR $v(t) = \frac{dx}{dt} = \alpha + 2\beta t + 3\gamma t^2$ $\because \quad a(t) = \frac{dv}{dt} = 2\beta + 6\gamma t$ $a(2) = 2(4) + 6(5)(2)$ $= 8 + 60 = 68\ \text{ms}^{-2}$ $\text{Force} = m \times a$ $= 1 \times 68$ $= 68\ \text{N}$	½ ½ ½ ½ ½ ½ ½	2
20	(a) The two bobs will execute simple harmonic motion (SHM) with the same time period, continuously exchanging their energy and momentum upon each elastic head-on collision. (b) 	1 1	2

21	(a) The two bodies may be made up of different materials and have different thermal capacities. (b) When the piston is pushed down rapidly, the air inside the pump is compressed adiabatically, leaving insufficient time for heat exchange with the surroundings. The work done on the air increases its internal energy, causing its temperature to rise and the pump to become warm.	1 1	2

SECTION C

Q.No	Value Points / Expected Answers	Marks	Total Marks
22	**(a)** False. In two-dimensional motion, even if the speed remains constant, the direction of velocity may change. Since displacement is a vector quantity, equal displacements in equal time intervals occur only when both the magnitude and direction of velocity remain constant (uniform velocity). (b) $\frac{dv}{dt} = -2.5\sqrt{v}$ $\frac{1}{\sqrt{v}}\,dv = -2.5\,dt$ $v^{-1/2}\,dv = -2.5\,dt$ $\int_{6.25}^{0} v^{-1/2}\,dv = -\int_{0}^{t} 2.5\,dt$ $\left[\frac{v^{1/2}}{1/2}\right]_{6.25}^{0} = -2.5[t]_0^t$ $-5 = -2.5t$ $t = \frac{-5}{-2.5} = 2$ seconds.	1 ½ ½ ½ ½	3

23	$I = I_1 + I_2 + I_3 + \ldots + I_n$ $= \frac{GM}{r_1^2} + \frac{GM}{r_2^2} + \ldots$ $= GM\left[\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{4^2} + \frac{1}{8^2} + \ldots\right]$ $= GM\left[1 + \frac{1}{4} + \frac{1}{16} + \frac{1}{64} + \ldots\right]$ $= GM \cdot \left[\frac{1}{1 - \frac{1}{4}}\right]$ $= GM \times \frac{4}{3} = G \times 3 \times \frac{4}{3} = 4G$	½ ½ 1 1	3
24	(a) The reading of barometer decreases as P= ρgh ⇨ h=P /ρg ⇨ As it moves up g= g+a ⇨ h'=P/ ρ(g+a) (b)  The weight, W, of the fluid above area A is given by: W =mg Using the density equation, mass can be given as: ρ=mV m=ρV=ρAh	1 ½ ½	3

	Substituting this expression for mass into the weight equation gives: W=ρAhg Therefore, the pressure exerted on area A can be given as: $$p = \frac{F}{A} = \frac{W}{A} = \frac{\rho Ahg}{A} = \rho hg$$ ⇨ h=P /ρg ⇨ As it moves up g= g+a ⇨ h'=P/ ρ(g+a) OR  (a) Reason : After some time it attains terminal velocity (b) A cricket ball has a relatively large radius. It attains a much higher terminal velocity than a small sphere. It would require a very tall column of a highly viscous liquid to reach terminal velocity.	½ ½ 1 1 1	
25	For the massless pulley B, The upward forces from the two segments of string 1 must balance the downward tension from string 2. $$\therefore T_2 = 2T_1 \quad \text{------- (2)}$$ For Block m_1 (moving downward): $$m_1 g - T_1 = m_1 a_1 \quad \text{------- (3)}$$ For Block m_2 (moving upwards): $$T_2 - m_2 g = m_2 a_2 \quad \text{------- (4)}$$ Using eqs (1), (2), (3) & (4) we get: $$T_1 = \frac{3m_1 m_2 g}{4m_1 + m_2}$$ $$T_2 = \frac{6m_1 m_2 g}{4m_1 + m_2}$$	1 ½ ½ ½ ½	3

26	$dQ = 0$ $dU = -\Delta W$ $\Longrightarrow nC_V dT = +146 \times 10^3$ J $\Longrightarrow \frac{nfR}{2} \times 7 = 146 \times 10^3$ [where, f is degree of freedom] $\Longrightarrow \frac{10^3 \times f \times 8.3 \times 7}{2} = 146 \times 10^3$ $\therefore f = 5.02 \approx 5$ So, it is a diatomic gas.	½ ½ ½ 1 ½	3
27	(a) Humid air has a lower density than dry air. Since the speed of sound is inversely proportional to the square root of the density of the medium, sound travels faster in humid air. $v \propto 1/\rho^{1/2}$ where ρ is the density of the medium. (b) The speed of sound increases with temperature. As the frequency of the source remains constant, the wavelength changes according to $v=f\lambda$. Hence, an increase in temperature changes the wavelength of the sound wave. $V \propto T^{1/2}$ (c) Solids possess both bulk and shear elasticity, enabling them to support both longitudinal and transverse waves. Gases have negligible shear rigidity and therefore cannot sustain transverse waves; they can propagate only longitudinal waves.	1 1 1	3

28	**(a)** **(i)** Average Kinetic Energy, for all three types of molecules P, Q and R will be same. **(ii)** R.M.S. speed: molecule (P) > molecule (Q) > molecule **(b)** Volume occupied by 1 g mole of gas at NTP = 22400 c.c. ∵ Number of molecules in 1 c.c. of hydrogen $= \frac{6.023 \times 10^{23}}{22400} = 2.688 \times 10^{19}$ Hydrogen gas being diatomic, has 5 degree of freedom ∴ total number of degree of freedom $= 5 \times 2.688 \times 10^{19}$ $= 13.44 \times 10^{19}$	½ ½ ½ ½ ½	3

SECTION D

Q.No	Value Points / Expected Answers	Marks	Total Marks
29	(i) B (ii) D (iii) C (iv) C OR A	1 1 1 1 1	4

30	(i)	Low conductivity	1	4
	(ii)	Reduce to half	1	
	(iii)		1	

$$\frac{Q}{t} = \frac{\kappa A(T_{out} - T_{insid})}{l}$$

$$= \frac{0.022 \times 2.5 \times (35 + 15)}{60 \times 10^{-3}}$$

$$\frac{0.022 \times 2.5 \times 50}{60 \times 10^{-3}}$$

$$= 0.045 \times 10^3 \text{ J/s} \quad 1$$

OR

1. **Total Thermal Resistance (R_{total}):**

$$R_{\text{total}} = R_1 + R_2 \quad ½$$

2. **Expressing Resistances:**

$$\frac{d_1 + d_2}{K_{\text{eff}} \cdot A} = \frac{d_1}{K_1 \cdot A} + \frac{d_2}{K_2 \cdot A} \quad ½$$

3. **Simplify by Canceling Area (A):**

$$\frac{d_1 + d_2}{K_{\text{eff}}} = \frac{d_1}{K_1} + \frac{d_2}{K_2}$$

$$\frac{d_1 + d_2}{K_{\text{eff}}} = \frac{d_1 K_2 + d_2 K_1}{K_1 K_2} \quad ½$$

4. **Solve for K_{eff}:**

$$K_{\text{eff}} = \frac{(d_1 + d_2) \cdot K_1 K_2}{d_1 K_2 + d_2 K_1} \quad ½$$

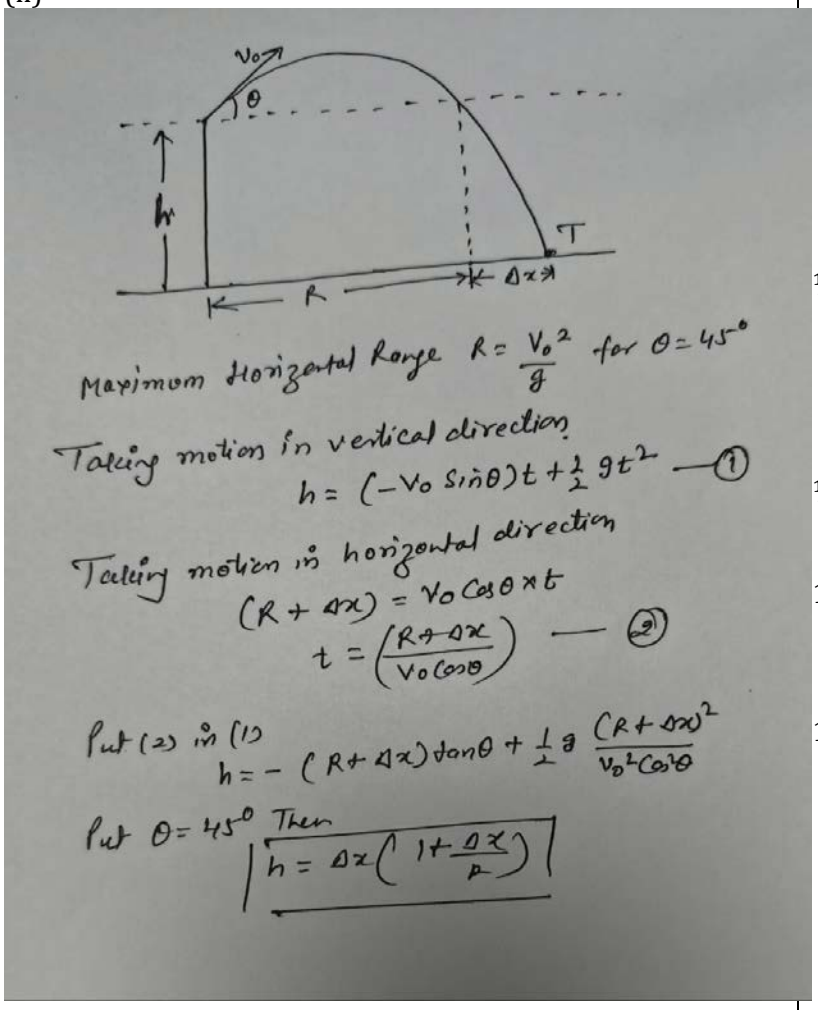
SECTION E

Q.No	Value Points / Expected Answers	Marks	Total Marks
31	(i) **(a)** Initial velocity in x-direction, $u_x = u + v_0 \cos\theta$ u_y = Initial velocity in y-direction $= v_0 \sin\theta$ where angle of projection is θ. Now, we can write $\tan\theta' = \frac{u_y}{u_x} = \frac{v_0 \sin\theta}{u + v_0 \cos\theta}$ $\Rightarrow \theta' = \tan^{-1}\left(\frac{v_0 \sin\theta}{u + v_0 \cos\theta}\right)$ (b) Let T be the time of flight. As net displacement is zero over time period T. $y = 0, u_y = v_0 \sin\theta, a_y = -g, t = T$ We know that $y = u_y t + \frac{1}{2} a_y t^2$ $\Rightarrow$ $0 = v_0 \sin\theta T + \frac{1}{2}(-g)T^2$ $\Rightarrow$ $T\left[v_0 \sin\theta - \frac{g}{2} T\right] = 0 \Rightarrow T = 0, \frac{2v_0 \sin\theta}{g}$	1 1	5

$T = 0$, corresponds to point O.
Hence,

$$T = \frac{2v_0 \sin\theta}{g}$$

(ii)



½

Maximum Horizontal Range $R = \frac{V_0^2}{g}$ for $\theta = 45^0$

Taking motion in vertical direction

$$h = (-V_0 \sin\theta)t + \frac{1}{2} g t^2 \quad \text{—— (1)}$$

½

Taking motion in horizontal direction

$$(R + \Delta x) = V_0 \cos\theta \times t$$

$$t = \left(\frac{R + \Delta x}{V_0 \cos\theta}\right) \quad \text{—— (2)}$$

1

Put (2) in (1)

$$h = -(R + \Delta x)\tan\theta + \frac{1}{2} g \frac{(R + \Delta x)^2}{V_0^2 \cos^2\theta}$$

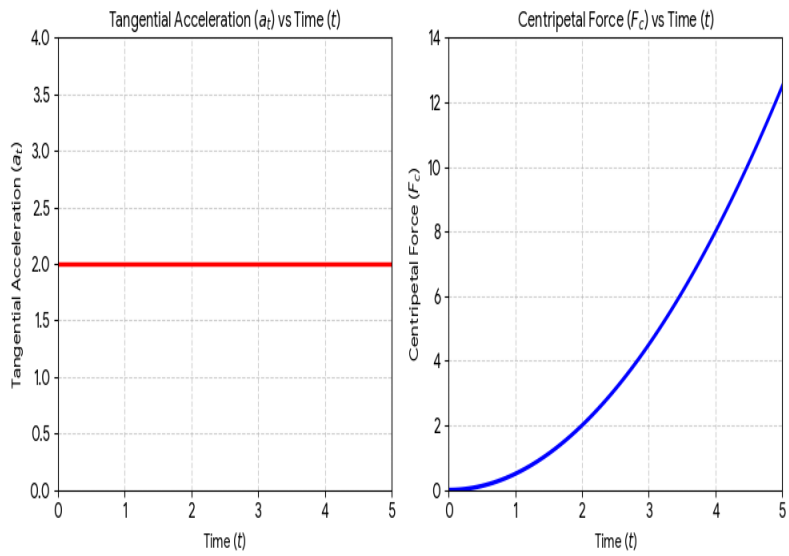
1

Put $\theta = 45^0$ Then

$$\boxed{h = \Delta x\left(1 + \frac{\Delta x}{R}\right)}$$

OR

(i)



1+1

(ii)

$$a_x = 3\cos 120° = -\frac{3}{2}$$ ½

$$a_y = 3\sin 120° = 3 \times \frac{\sqrt{3}}{2}$$ ½

$$v_x = -2 + \left(-\frac{3}{2}\right) \times 2 = -5$$ ½

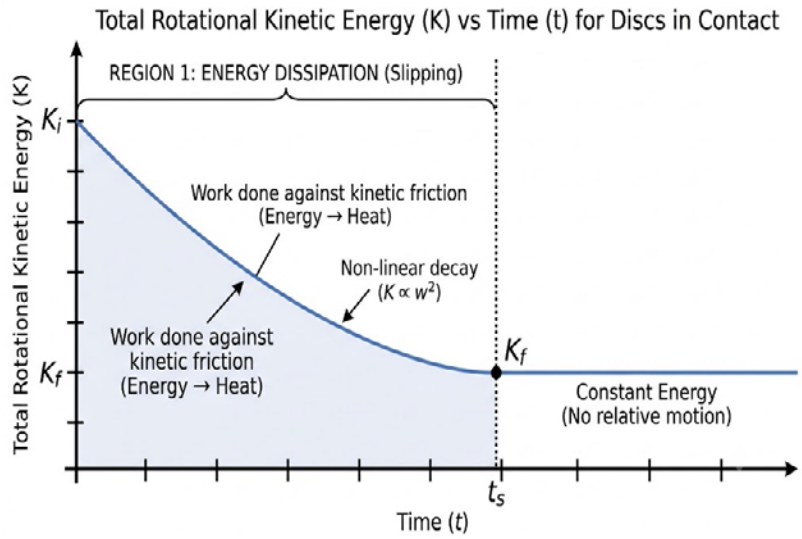
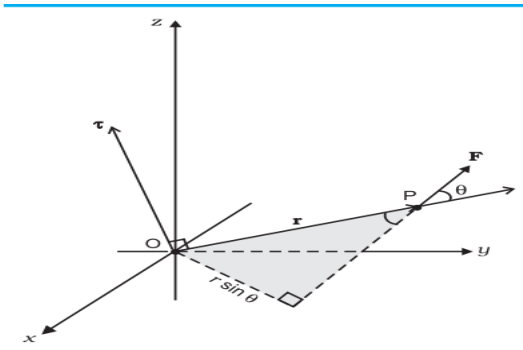
$$v_y = 4 + \frac{3\sqrt{3}}{2} = 6.6$$ ½

$$v = v_x\hat{i} + v_y\hat{j}$$

$$v = -5\hat{i} + 6.6\hat{j}$$ ½

$$\tan\beta = \frac{v_y}{v_x} = -\frac{6.6}{5} = -1.32$$ ½

32	(i) When the two rotating discs are brought into contact, friction acts between the discs only. This friction is an		5

	internal force for the two-disc system. Since no external torque acts on the system about the common axis of rotation, the total angular momentum remains conserved. (ii) • Moments of inertia of the discs = I_1 and I_2 • Initial angular speeds = ω_1 and ω_2 • Final common angular speed = ω Initial angular momentum $L_i=I_1\omega_1+I_2\omega_2$ After contact, both discs rotate together. $L_f=(I_1+I_2)\omega$ Apply conservation of angular momentum $I_1\omega_1+I_2\omega_2=(I_1+I_2)\omega$ $\omega= I_1\omega_1+I_2\omega_2/ (I_1+I_2)$ (iii)  OR  (i)	1 1 1 1 (for sketching) 1(for labelling) 1	

	(ii) Let a force **F** act at an angle θ with the position vector **r**. Resolving the force into two mutually perpendicular components: • **Radial component:** $F_r=F\cos\theta$ (along the position vector) • **Tangential component:** $F_t=F\sin\theta$ (perpendicular to the position vector) The torque due to the applied force is $\tau=rF\sin\theta$. Since $F_t=F\sin\theta$, $\tau=r\,F_t$. For the radial component, $\tau_r=rF\sin 0^\circ=0$, Because the radial force acts along the line joining the point of application and the axis of rotation, giving zero perpendicular distance (moment arm). Hence, • **Tangential component alone produces torque.** • **Radial component produces no torque.** (iii) No. The weight acts vertically downward, parallel to the hinge axis. Hence, its component perpendicular to the axis of rotation is zero, so the torque about the hinge axis is zero**.** Therefore, the weight of the door does not cause it to rotate about its hinges.	1 1 2	
33	(i) Harmonics are integral multiples of the fundamental frequency, whereas overtones are frequencies higher than the fundamental. Since the first harmonic is the fundamental itself, it is not an overtone. Hence, every overtone is a harmonic, but the first harmonic is not an overtone.	1	5

(ii)

$$\lambda = \frac{4L}{3}$$

$$\therefore \nu_1 = \frac{v}{\lambda} = \frac{3v}{4L} \text{ —— (1)}$$ 1

for figure (B)

$$\lambda = \frac{4L}{5}$$

$$\therefore \nu_2 = \frac{v}{\lambda} = \frac{5v}{4L} \text{ —— (2)}$$ 1

Hence $\nu_1 : \nu_2 = 3 : 5$

(iii)

Sol^n Let time t_1 taken by the stone to fall into well under gravity is given by

$$t_1 = \sqrt{\frac{2h}{g}}$$ ½

time (t_2) taken for the splash to travel height (h) is given by

$$t_2 = \frac{h}{v}$$ ½

$$\therefore \quad t_1 + t_2 = 1.45\,\text{s}$$

$$\sqrt{\frac{2h}{g}} + \frac{h}{v} = 1.45$$

$$\sqrt{\frac{2h}{9.8}} + \frac{h}{332} = 1.45$$ 1

$$h = 9.9\ \text{m}$$

OR

(i)

$$4v^2 = 50 - x^2$$

$$v = \frac{1}{2}\sqrt{50 - x^2} = \omega\sqrt{A^2 - x^2}$$ ½

$\therefore$ On comparing, we get

$$\omega = \frac{1}{2} \text{ rad s}^{-1}$$ ½

$$\therefore T = \frac{2\pi}{\omega}$$

$$\frac{x}{7} = \frac{2\pi}{(1/2)}$$ ½

$$x = 88 \text{ m}$$ ½

(ii) (**a**)

(i) The two springs are connected in parallel, so the force constant of the combination is

$$k' = k + k = 2k \quad \text{--- (1)}$$ ½

Now,

$$T = 2\pi\sqrt{\frac{m}{k'}} \quad \text{--- (2)}$$ ½

or

$$k' = \frac{4\pi^2 m}{T^2} \Rightarrow \frac{4 \times (3.14)^2 \times 12}{(1.5)^2} = 210.34 \text{ N}$$ ½

$$\therefore k = \frac{k'}{2} = 105.17 \text{ Nm}^{-1}$$ ½

(b)

(ii) With block M ($M > m$):
Time period of oscillation becomes

$$T' = 2\pi\sqrt{\frac{M + m}{k'}} \quad \text{--- (3)}$$ ½

From (2) and (3):

$$\frac{3}{1.5} = \sqrt{\frac{M + 12}{12}}$$

$$\therefore M = 36 \text{ kg}$$ ½

SAMPLE QUESTION PAPER
CHEMISTRY
CLASS XI (2026-27)

M M:70 **Time:3 hours**

General Instructions:

Read the following instructions carefully.

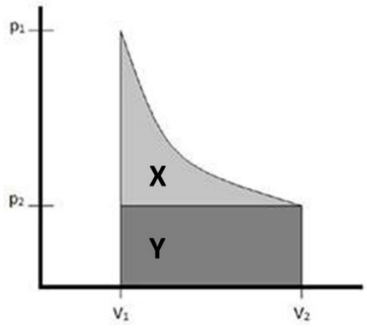
(a) There are 33 questions in this question paper with internal choices.
(b) SECTION A consists of 16 multiple-choice questions carrying 1 mark each.
(c) SECTION B consists of 5 short answer questions carrying 2 marks each.
(d) SECTION C consists of 7 short answer questions carrying 3 marks each.
(e) 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. Select the sample contains the greatest number of atoms?
   A. 1 mol of He
   B. 0.5 mol of O_2
   C. 0.25 mol of CH_4
   D. 1 mol of H_2
2. The number of significant digits in 1559.00 is ____
   A. 6
   B. 5
   C. 3
   D. 4
3. Identify the correct ground-state electronic configuration of Fe^{2+} ion:
   A. [Ar] $4s^2$ $3d^4$
   B. [Ar] $3d^6$
   C. [Ar] $4s^1$ $3d^5$
   D. [Ar] $3d^7$
4. Choose the element in which the outermost electron can be removed most easily:
   A. Mg
   B. Al
   C. Ga
   D. Ca
5. Ascertain the correct order of sizes of the following isoelectronic species - Na^+ ,Mg^{2+} ,Al^{3+}, S^{2-}
   A. $Na^+ < Mg^{2+} < Al^{3+} < S^{2-}$
   B. $S^{2-} < Na^+ < Mg^{2+} < Al^{3+}$
   C. $Al^{3+} < Mg^{2+} < Na^+ < S^{2-}$
   D. $Mg^{2+} < Al^{3+} < S^{2-} < Na+$

6. The correct order of increasing bond angle in NO_2 , NO_2^+ , NO_2^- is:
   A .$NO_2^- < NO_2 < NO_2^+$
   B. $NO_2 < NO_2^- < NO_2^+$
   C. $NO_2^+ < NO_2 < NO_2^-$
   D. $NO_2^+ < NO_2^- < NO_2$
7. The area under the P-V isotherm represents the total work done. X and Y represent the different shaded region under the isotherm. Which of the following is true for the reversible (W_{rev}) work done when an ideal gas is expanded reversibly from the volume V_1 to V_2.



A.W_{rev} = x
B. W_{rev} = y
C. W_{rev} =x + y
D. W_{rev} = $x^2 - y^2$

8. In the reaction: $2FeCl_2 + Cl_2 \rightarrow 2FeCl_3$
   The oxidation number of iron changes from _____ to _____, indicating that iron undergoes_____.
   A. +2 to +3 ; oxidation
   B. +3 to +2 : reduction
   C. +2 to 0 ; reduction
   D. 0 to +3; oxidation

9. A student places four metals in separate test tubes containing dilute hydrochloric acid. Which metal is most likely to produce hydrogen gas despite not reacting with steam?
   A. Copper
   B. Cadmium
   C. Silver
   D. Platinum

10. Identify the compound in which nitrogen cannot be estimated by Kjeldahl's method
   A. Azo compounds
   B. Aniline
   C. Hydrazine
   D. Benzamide

11. Electrophile that participates in sulphonation of benzene is :

A. SO_3H^+

B. SO_2

C. HSO_4^-

D. SO_3^-

12. Identify the compound with highest boiling point:

A. Neopetane

B. iso pentane

C. n-pentane

D. n-Butane

Question number 13 to 16 are assertion reason types. Given below are two statements labelled as Assertion (A) and Reason (R).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.

13. Assertion (A): Two electrons having the same principal quantum number might not have the same energy in a multi-electron atom.

Reason (R): In multi-electron atoms, the energy of an electron depends on both the principal quantum number (n) and the azimuthal quantum number (l)

14. Assertion (A): The first electron gain enthalpy of oxygen is positive, whereas its second electron gain enthalpy is negative.

Reason (R): The addition of a second electron to the O^- ion requires energy to overcome the electrostatic repulsion between the incoming electron the negatively charged ion.

15. Assertion (A): When the volume of a sealed container containing a liquid–vapour system at equilibrium is suddenly increased at constant temperature, the vapour pressure initially decreases but eventually regains its original value.

Reason (R): At constant temperature, the equilibrium vapour pressure of a liquid depends only on temperature and is independent of the volume of the container.

16. Assertion (A) : -OH group is activating and o and p- directing towards electrophilic substitution

Reason (R): It is due to -I and - R which is dominating over -I effect.

SECTION B

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

17. Calculate the minimum uncertainty in the momentum of an electron if its position is known within 2.0×10^{-10} m.

18. An electron and a proton have the same kinetic energy. Which particle has the greater de Broglie wavelength? Calculate the ratio of their wavelengths.

19. (A) At 500 K, for the reaction $2SO_2(g)+O_2(g)\rightleftharpoons 2SO_3(g)$, Kc=100. Considering the reactants and the products in their standard states calculate Kp.

OR

19. (B) A solution has a pH of 4. Another solution has a hydrogen ion concentration that is 100 times greater than the first solution. Calculate the pH of the second solution.

20. The following redox reaction takes place in an acidic medium:

$Cr_2O_7^{2-} + x\ H^+ + 6I^- \rightarrow 2Cr^{3+} + 3I_2 + y$

Answer the following:

(a) Identify x and y required to balance the above reaction.

(b) Determine the species that undergoes oxidation in the above reaction.

(c) State the total number of electrons transferred in the balanced redox reaction.

21. A mixture contains two miscible liquids with boiling points of 95°C and 105°C. A student chooses simple distillation instead of fractional distillation. Analyze whether the student has made the correct choice. Justify your answer.

SECTION C

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

22. The threshold frequency of a metal is 5.5×10^{14} Hz. If light of frequency 8.5×10^{14} Hz is incident on it, calculate the maximum kinetic energy(in eV) of the emitted electrons.

23 . Attempt any three out of the following four questions:

(a) Why is the first ionisation enthalpy of calcium (Ca) higher than that of potassium (K)?

(b) Why does oxygen generally show a covalency of 2, while sulphur can show covalencies of 2, 4, and 6?

(c) Which has a larger atomic radius: Cl^- or Cl? Why?

(d) An element forms X^{2+} ion easily and has electronic configuration $[Ne]3s^2$. Identify the element and write its symbol.

24. Two diatomic species, X_2^- and X_2^{2-}, contain 17 and 18 electrons, respectively.Using Molecular Orbital Theory, answer the following:

(a) Determine the magnetic behaviour of X_2^- and X_2^{2-}.

(b) Which species is more stable? Give a reason.

(c) Which species has the longer bond length? Justify your answer.

25. (a) P and S in PCl_5 and SF_4 respectively have the same hybridisation but their molecules have different shapes. Explain this on the basis of VSEPR theory.

(b) Why is XeF_4 non-polar despite containing polar Xe–F bonds?

26. (a) The heat evolved in combustion of methane is given by the equation

$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + H_2O(l)$ $\quad \Delta_r H = -890.3\ kJ\ mol^{-1}$

Calculate the amount of methane in grams that would be required to produce 445.15 kJ of heat of combustion.

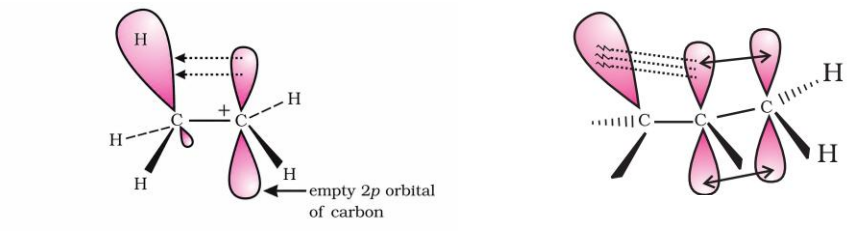
(b) Calculate the enthalpy of formation of HCl

$H_2(g) + Cl_2(g) \rightarrow 2HCl\ (g)$ $\Delta_rH = -184.0\ kJ\ mol^{-1}$

(c) No work is done on the system, but q amount of heat is taken out from the system and given to the surroundings. What type of wall does the system have?

27. Consider the following orbital diagrams and answer the questions that follow.

(i) (ii)



(a) Identify the species represented by (i) and (ii)

(b) Which phenomenon is illustrated by these diagrams

(c) Identify the hybridization of positively charged Carbon in diagram (i)

28. (a) But-1-yne liberates H_2 with sodamide but But-2-yne does not. Give reason.

(b) An organic compound X' C_4H_6 on complete ozonolysis followed by reaction Zn / H_2O gives 2 moles of HCHO and one mole of glyoxal (OHC-CHO). Identify 'X' and write the chemical reaction involved.

SECTION D

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

29. Sulphuric acid is manufactured by the Contact Process. In one of the important steps, sulphur dioxide reacts with oxygen according to the equilibrium:

$2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g) + Heat$

This reaction produces sulphur trioxide which is further used in the production of sulphuric acid. Industrial chemists carefully choose the operating conditions to maximize the yield of sulphur trioxide while ensuring that the reaction proceeds at a practical rate. A catalyst is also used to speed up the attainment of equilibrium.

Answer the following questions:

(a) Why is high pressure favourable for this reaction?

(b) What is the effect of increasing temperature on the equilibrium yield of SO_3?

(c) How will the equilibrium constant for the above reaction be affected by:

(i) decreasing the temperature?

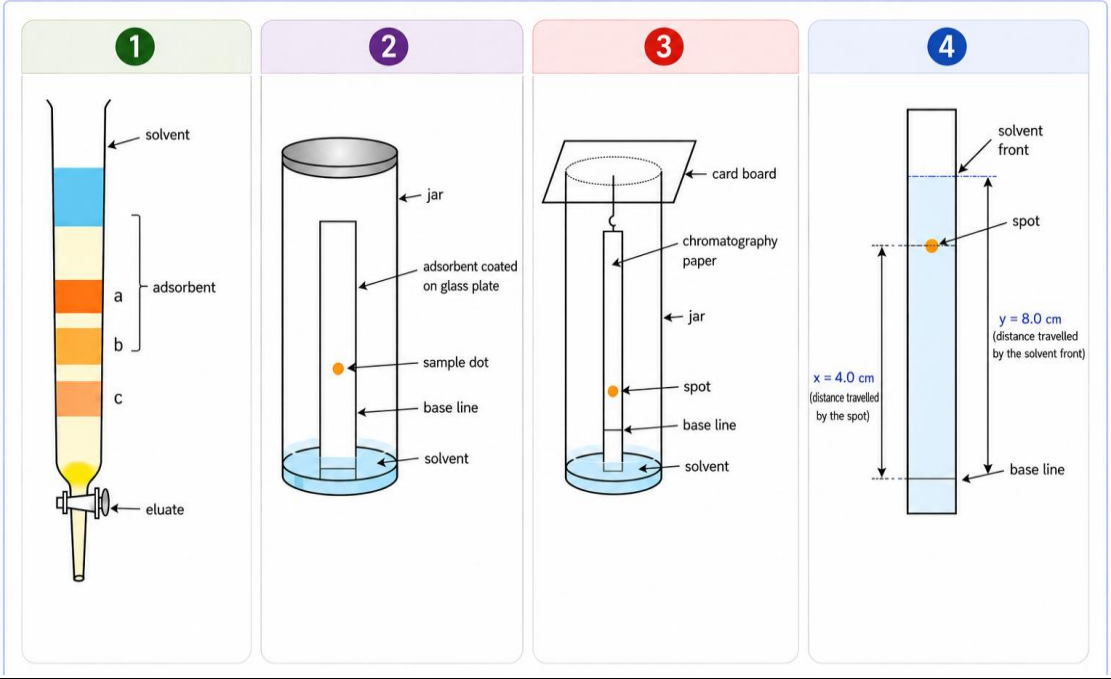
(ii) increasing the pressure?

Justify your answer.

OR

(c) How does the catalyst affect the equilibrium constant of the above reaction? Give a reason.

30. Study the following figures showing different separation techniques and answer the questions that follow.



(a) Compare the principle of separation in Figure 2 and Figure 3

OR

Specify the separation technique shown in Figure 1.

(b) Identify the stationary phase used in fig 3

(c) What is the significance of R_f value . Calculate R_f value for fig 4

SECTION E

The following questions are long answer type and carry 5 mark each. All questions have an internal choice (Either attempt A or B part of each question).

31. A. (a) A gaseous mixture contains 2 moles of Gas A (Molar Mass = 20 g/mol) and 3 moles of Gas B (Molar Mass = 30 g/mol). What is the average molar mass of the mixture?

(b) Hydrogen and oxygen are mixed in the mole ratio 3 : 2. Identify the limiting reagent and calculate the amount of water produced in the reaction :

$2H_2 + O_2 \rightarrow 2H_2O$

(c) A hydrocarbon has carbon and hydrogen in the molar ratio 1:2 and has a molecular Mass of 56. What is its molecular formula?

OR

B. (a) Two compounds are formed by the combination of carbon and oxygen. In compound A 12 g of carbon is combined with 16 g of oxygen. In compound B 24 g of carbon is combined with 64 g of oxygen. Using the given data, examine whether the compounds satisfy the Law of Multiple Proportions and justify your answer.

(b) A laboratory technician accidentally labels a solution only with its molarity (4.0 M) and density (1.20 g mL^{-1}). The solution contains potassium nitrate (KNO_3) (Molar mass =101 g mol^{-1}). To study freezing point depression, the technician prefers the molality rather than the molarity. Give the reason for his preference and calculate the molality of the solution.

32. A. (a) Using the following thermochemical data, calculate the enthalpy of formation of butane.

$\Delta_f H°_{CO2}$=-393.5kJmol^{-1}
$\Delta_f H°_{H2O}$=−285.83kJmol^{-1}
$\Delta_c H°_{C4H10}$=-2658kJ mol^{-1}

(b) Rusting of iron : $4Fe(s) + 3O_2(g) \Rightarrow 2Fe_2O_3(s)$, is spontaneous process although entropy change for this reaction is negative. Explain.

OR

B. (a) For the reaction in which compound is being formed from the elements in their standard states , the enthalpy of reaction is equal to enthalpy of formation of the compound. Explain.

(b) For the reaction :

$N_{2\,(g)} + 3\ H_{2(g)} \Rightarrow 2NH_{3(g)}$, $\Delta_f H^0_{NH3}$=-46.2kJ mol^{-1} and $\Delta_r S^0$ = -198.75Jmol^{-1}K^{-1} . At what temperature will the reaction become spontaneous considering ΔH and ΔS to be constant over the temperature range.

33.A. (a) Benzene undergoes nitration in the presence of a mixture of concentrated nitric acid and concentrated sulphuric acid. The reaction follows the electrophilic substitution mechanism. For this reaction:

(i) Identify the electrophile generated in the reaction.
(ii) Write the step showing the attack of the electrophile on the benzene ring .
(iii) Write the step responsible for the restoration of aromaticity to form the final product.

(b) An organic compound ' A' (C_6H_6) is obtained from 'B' by heating with soda lime. 'A' reacts with acetyl chloride in presence of $AlCl_3$, to form 'D'. Identify 'B' and 'D' .

OR

B. (a) Kolbe's electrolysis of sodium acetate produces ethane at the anode. Explain the mechanism of this reaction by writing the sequence of steps involved. Also write the overall reaction.

(b) Answer the following questions:

(i) Give IUPAC name of the alkyne that would lead to the formation of $CH_3CH_2CH_2COCH_3$ on hydration.

(ii) Write the structure of alkene which on heating with $KMnO_4$ /KOH gives Hexan-1,6-dioic acid

Marking Scheme
Sample Question Paper
Chemistry XI
2026-27

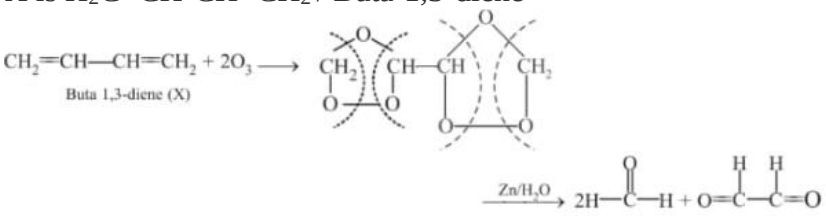
Q. No	Sub part	Value Points	Step wise marks	Total Marks
1		D	1	1
2		A	1	1
3		B	1	1
4		B	1	1
5		C	1	1
6		A	1	1
7		C (**$W_{rev} = x + y$**)	1	1
8		A (**+2 to +3; oxidation state**)	1	1
9		B (**Cadmium**)	1	1
10		A	1	1
11		A	1	1
12		C	1	1
13		A	1	1
14		D	1	1

15		A	1	1
16		C	1	1
17		Using the **Heisenberg Uncertainty Principle**: $\Delta x \Delta p \geq h/4\pi$ $\Delta x = 2.0\times10^{-10}$ m $h = 6.626\times10^{-34}$ J s Substituting the values: $\Delta p = 6.626\times10^{-34}/4\pi\times2.0\times10^{-10}$ $= 2.64\times10^{-25}$ kg m s^{-1}	½ ½ 1	2
18		For particles with the same kinetic energy, $\lambda = h/\sqrt{2mK}$ Hence, $\lambda \propto 1/\sqrt{m}$ $\lambda e/\lambda p = \sqrt{m_p}/\sqrt{m_e}$ $= \sqrt{1835}$ ≈ 42.8	 ½ ½ 1	2
19		$Kp = Kc(RT)^{\Delta n}$ $\Delta n = 2-3 = -1$ $Kp = 100(RT)^{-1}$ $= 100 / RT$ Taking R=0.0821 L atm $mol^{-1}K^{-1}$, $=100/ 0.0821x500$ $= 2.44$ OR pH of first solution = **4** Hydrogen ion concentration in the second solution = 100 times that of the first solution. $[H+] = 10^{-4}$ mol L^{-1} $[H^+] = 100\times10^{-4} = 10^{-2}$ mol L^{-1} $pH = -\log[H^+] = -\log(10^{-2}) = 2$	 ½ ½ ½ 1 1	2 2

20.	(a) (b) (c)	x= 14 y=$7H_2O$ Iodide ion/I^- 6 electrons	½ ½ ½ ½	 2
21		The student has made the **incorrect choice**. For this mixture, fractional distillation should be used instead of simple distillation as the difference in boiling point is less than 25K.	1 1	 2
22.		$K_{max} = h(\nu - \nu_0)$ $=6.63\times10^{-34}(8.5-5.5)\times10^{14}$ $=1.89\times10^{-19}$ J Converting into eV: $K_{max} = 1.89\times10^{-19}/1.6\times10^{-19}=1.18$ eV $K_{max} = 1.18$ eV	1 1 1	 3
23.		(a).The first ionization enthalpy of calcium is higher than that of potassium because calcium has a higher effective nuclear charge and a smaller atomic size. (b)Oxygen generally shows a valency of 2, while sulphur can expand its covalency to 2, 4, and 6 due to the absence of d-orbitals in oxygen.. (c) The chloride ion has a larger radius than a neutral chlorine atom. The addition of an extra electron increases electron-electron repulsion within the valence shell, causing the electron cloud to expand outward. Consequently, the effective nuclear charge per electron decreases, making Cl^- larger than Cl. (d) The element with the electronic configuration $[Ne]3s^2$ is Magnesium. (Any 3 parts to be done)	1 1 1 1X3=3	 3

24.	(a)	X_2^- (17 electrons): Paramagnetic (one unpaired electron) X_2^{2-} (18 electrons): Diamagnetic (all electrons are paired)	½ ½	
	(b)	X_2^- is more stable because it has a higher bond order (1.5) than X_2^{2-} (1.0).	½ ½	
	(c)	X_2^{2-} has the longer bond length because it has the lower bond order.	1	

25.	(a)	Both PCl_5 and SF_4 have sp^3d hybridisation, which corresponds to a trigonal bipyramidal electron pair geometry according to VSEPR theory.		3
		PCl_5: The central phosphorus atom has 5 bond pairs and no lone pair (AB_5).	1	
		SF_4: The central sulphur atom has 4 bond pairs and 1 lone pair (AB_4E).	1	
	(b)	Xenon in XeF_4 undergoes sp^3d^2 hybridisation and has 6 electron pairs (4 bond pairs and 2 lone pairs).		
		The four Xe–F bond dipole moments are arranged symmetrically and cancel each other completely.	1	

26	(a)	890.3kJ of heat is produced when 1 mole , that is , 16g of methane undergoes combustion. Thus, 445.15 kJ will be produced on combustion of = 8g	1	
	(b)	Enthalpy of formation of HCl = - $\frac{184}{2}$ = = -92kJmol^{-1}	1	
	(c)	Thermally conducting wall	1	3
27.	(a)	(i) Ethyl cation (ii) Propene	½ +½	3
	(b)	Hyperconjugation	1	
	(c)	Sp^2 hybridized	1	
28.	(a)	Hydrogen atom of But-1-yne attached to triply bonded carbon atom is acidic in nature while in But-2-yne there is no hydrogen attached to triply bonded carbon.	1	
	(b)	X is $H_2C=CH-CH=CH_2$ / Buta-1,3-diene  	1 1	3

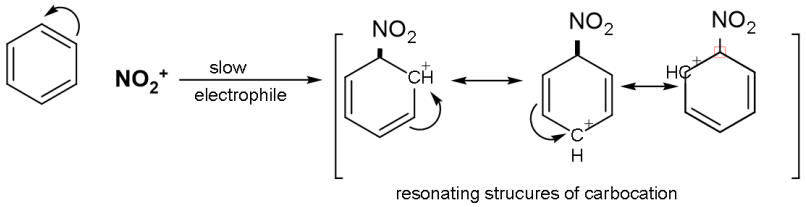
29.	(a)	High pressure is favourable because the reaction involves a decrease in the number of moles of gaseous reactants from 3 moles ($2SO_2 + O_2$) to 2 moles ($2SO_3$). According to Le Chatelier's principle, increasing pressure shifts the equilibrium towards the side with fewer gaseous moles, thereby increasing the yield of SO_3.	1	
	(b)	Since the reaction is exothermic, increasing the temperature shifts the equilibrium in the backward direction (towards SO_2 and O_2). Hence, the equilibrium yield of SO_3 decreases.	1	
	(c)	(i) Effect of decreasing the temperature on the equilibrium constant (K): For an exothermic reaction, decreasing the temperature favours the forward reaction. Therefore, the value of the equilibrium constant (K) increases. (ii) Effect of increasing the pressure on the equilibrium constant (K): The equilibrium constant remains unchanged because it depends only on temperature and is independent of pressure.	1 1	
		OR		
		Effect of catalyst on the equilibrium constant (K): A catalyst does not affect the value of the equilibrium constant (K) because it increases the rates of both the forward and backward reactions equally. It only helps the system attain equilibrium faster without changing the position of equilibrium or the value of K.	1 1	4

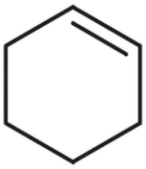
30.	(a)	Fig 2(Thin Layer Chromatography i.e.TLC) primarily separates mixtures based on **adsorption**, where components adhere to a solid stationary phase. In contrast, Fig 3(Partition chromatography) separates components based on differing **solubilities**. OR Column chromatography	1	
	(b)	The stationary phase used in Fig 3 is Chromatography paper.	1	
	(c)	In chromatography, the R_f value (Retention Factor) is a ratio measuring how far a specific substance travels relative to the solvent front. R_f for fig 4: $R_f = \frac{\text{Distance traveled by the substance}}{\text{Distance traveled by the solvent}}$ $R_f = \frac{4}{8} = 0.5$	1 1	4
31. A	(a)	Moles of Gas A = 2 mol, Molar mass = 20 g/mol Mass of A = 2×20=40 g Moles of Gas B = 3 mol, Molar mass = 30 g/mol Mass of B = 3×30=90 g Total mass = 40+90=130g Total moles = 2+3=5 mol Average molar mass=130/5 =26 g mol^{-1}	½ ½ 1	
	(b)	The required mole ratio is: $H_2 : O_2 = 2 : 1$ The given mole ratio is : $H_2 : O_2$ =3 : 2 =1.5 : 1 For 2 moles of O_2, 4 moles of H_2 are required, but only 3 moles of H_2 are available. Therefore, H_2 is insufficient and will be consumed first. 1 mol of H_2 forms 1 mol of H_2O 1.5 mol of H_2 forms 1.5 mol of H_2O Amount of H_2O formed = 1.5 X 18 = 27 g	½ ½ ½ ½	

	(c)	Empirical formula mass:12+(2×1)=14 n=56/14 =4 Molecular formula=$(CH_2)_4=C_4H_8$	½ ½	
B	(a)	**Given:** ● **Compound A:** 12 g of carbon combines with 16 g of oxygen. ● **Compound B:** 24 g of carbon combines with 64 g of oxygen. To compare the compounds, fix the mass of carbon at **12 g**. For **Compound B**: 24 g of carbon→64 g of oxygen 12 g of carbon→64×12/24=32 g of oxygen Thus, for **12 g of carbon**: ● Compound A contains **16 g of oxygen**. ● Compound B contains **32 g of oxygen**. Ratio of the masses of oxygen: 16 : 32 = 1 : 2 The compounds obey the **Law of Multiple Proportions** because the masses of oxygen that combine with the same mass (12 g) of carbon are in the simple whole-number ratio **1 : 2**.	½ + ½ ½ + ½	
	(b)	Molality is preferred over molarity for freezing point depression because molality depends on the mass of the solvent, which does not change with temperature. Molarity depends on the volume of the solution, which changes with temperature. Since colligative properties are temperature-dependent, molality gives more accurate results. Molarity (M) = 4.0 mol L^{-1} Density of solution = 1.20 g mL^{-1} Molar mass of KNO_3 = 101 g mol^{-1} Consider 1 L of solution. Moles of KNO_3=4.0 mol Mass of 1 L solution=1000×1.20=1200 g Mass of KNO_3=4.0×101=404 g Mass of solvent=1200−404=796 g=0.796 kg m=4.0/0.796=5.025 mol Kg^{-1}	½ ½ ½ ½ 1	5

32.	a)	The standard enthalpy of a reaction is calculated by subtracting the sum of the enthalpies of formation of the reactants from that of the products: $\Delta_c H^\circ = \left[4 \times \Delta_f H^\circ(CO_2) + 5 \times \Delta_f H^\circ(H_2O)\right] - \left[\Delta_f H^\circ(C_4H_{10}) + \frac{13}{2} \times \Delta_f H^\circ(O_2)\right]$	1	
		Substituting the values: $\Delta_f H^\circ(C_4H_{10}) = [4(-393.5) + 5(-285.83)] - (-2658)$	1	
		$\Delta_f H^\circ(C_4H_{10}) = [-1574 - 1429.15] + 2658$		
		$\Delta_f H^\circ(C_4H_{10}) = -3003.15 + 2658 = -345.15 \text{ kJ mol}^{-1}$	1	
	b)	Rusting is spontaneous because it is highly exothermic (ΔH is negative). The heat released into the surroundings significantly increases the surrounding's entropy, resulting in an overall positive total entropy change for the universe, and an overall negative Gibbs free energy (ΔG) as per the formula given below:	1	
		$\Delta G = \Delta H - T\Delta S_{sys}$	1	5
		OR		
B	a)	By definition, the enthalpy of reaction ($\Delta_r H$) is the total heat energy absorbed or released during a chemical process. The standard enthalpy of formation ($\Delta_f H^0$) is the specific heat change when exactly 1 mole of a compound is formed from its elements in their most stable (standard) states. The two values are equal because both represent the generation of exactly 1 mole of the product. In thermodynamics, the enthalpy of any pure element in its natural standard state is assigned a value of **zero**. Therefore, when calculating the enthalpy of		

		reaction, the elements on the reactant side mathematically drop out, leaving only the enthalpy of the newly formed compound.	1	
	(b)	The given value is the standard enthalpy of formation ($\Delta_f H^\circ$) for 1 mole of NH_3. The balanced reaction produces 2 moles of NH_3. • $\Delta_r H^\circ = 2 \times \Delta_f H^\circ(NH_3)$ • $\Delta_r H^\circ = 2 \times (-46.2\ \text{kJ mol}^{-1})$ • $\Delta_r H^\circ = -92.4\ \text{kJ mol}^{-1} = -92,400\ \text{J mol}^{-1}$ • $\Delta_r S^\circ = -198.75\ \text{J K}^{-1}\ \text{mol}^{-1}$		
		A reaction is spontaneous when the Gibbs free energy change (ΔG°) is negative ($\Delta G^\circ < 0$). At the equilibrium threshold, $\Delta G^\circ = 0$. $$\Delta G^\circ = \Delta_r H^\circ - T\Delta_r S^\circ = 0$$	1	
		$$T = \frac{\Delta_r H^\circ}{\Delta_r S^\circ}$$	1	
		Substituting the values into the equation: $$T = \frac{-92,400\ \text{J mol}^{-1}}{-198.75\ \text{J K}^{-1}\ \text{mol}^{-1}} \approx 464.91\ \text{K}$$	½ ½	
		• Both Δ_H and Δ_S are negative. • The $-T\Delta_S$ term is positive. • Lower temperatures minimize the positive term. • Therefore, the reaction is spontaneous below 464.91 K.	1	

33.	(a)	(i) nitronium ion / NO_2^+	1	
		(ii)  resonating strucures of carbocation	1	
		(iii) $C_6H_6NO_2^+ + HSO_4^- \rightarrow C_6H_5NO_2 + H_2SO_4$	1	
	(b)	B= Sodium benzoate(C_6H_5COONa) or Benzoic acid	1	
		(C_6H_5COOH)	1	
		D= Acetophenone / $C_6H_5COCH_3$		
	(a)	OR		
		An aqueous solution of sodium or potassium salt of a carboxylic acid on electrolysis gives alkane containing even number of carbon atoms at the anode		
		.		
		i) $2CH_3COO^-Na^+ \rightleftharpoons 2CH_3-\overset{\overset{O}{\|}}{C}-O^- + 2Na^+$	1	
		ii) **At anode:** $2CH_3-\overset{\overset{O}{\|}}{C}-O^- \xrightarrow{-2e^-} 2CH_3-\overset{\overset{O}{\|}}{C}-\dot{O}^- \longrightarrow 2\dot{C}H_3 + 2CO_2\uparrow$ Acetate ion; Acetate free radical; Methyl free radical	1	
		iii) $H_3\dot{C} + \dot{C}H_3 \rightarrow H_3C-CH_3\uparrow$		
		iv) **At cathode :** $H_2O + e^- \rightarrow OH^- + H^\bullet$ $2H^\bullet \rightarrow H_2\uparrow$		
		Overall reaction:	1	

	(b)	$2CH_3COO^-Na^+ + 2H_2O$ Sodium acetate ↓ Electrolysis $CH_3 - CH_3 + 2CO_2 + H_2 + 2NaOH$ (i) To prepare Pentan-2-one the required alkyne is Pent-1-yne. (ii) The structure of cyclohexene ,the starting alkene to prepare Hexan-1.6-dioic acid is : 	1 1	5

SAMPLE QUESTION PAPER
CLASS XI (2026-27)
MATHEMATICS

Time: 3 hours **M.M: 80**

General instructions

1. This question paper contains 38 questions and 6 printed pages.

2. This Question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.

3. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.

4. Section B has 5 Very Short Answer (VSA)-type questions of 2 marks each.

5. Section C has 6 Short Answer (SA)-type questions of 3 marks each.

6. Section D has 4 Long Answer (LA)-type questions of 5 marks each.

7. Section E has 3 source based/case based/passage based/integrated units of assessment of 4 marks each with sub parts.

S.No.	**Section -A** (This section comprises of 20 Multiple choice questions (MCQs) of 1 mark each.)	Marks
1	If $A = [1, 20]$ and $B = [15, 30]$, then $A - B$ is A) (1,15) B) [1,15) C) (1,15} D) [1,15]	1
2	Let $z_1 = 2 - 3i$ *and* $z_2 = -1 + 2i$, then the quadrant of Argand plane in which $2z_1 - 3z_2$ lies is A) I B) II C) III D) IV	1
3	The standard deviation of ten observations is 5 . If 7 is added to each observation then new variance is A) 5 B) 25 C) 35 D) 144	1
4	If P(n,r) = 24 C(n,r) then possible value(s) of r is(are) A) 3 B) 4 C) 3 or 4 D) 5	1
5	If A and B are two sets such that $A \subset B$, then $A' \cup B =$ A) ϕ B) A' C) U D) B	1
6	If $7^{1-2x} + 49^x = m$, then minimum value of m is A) $\sqrt{7}$ B) 7 C) $2\sqrt{7}$ D) $\frac{\sqrt{7}}{2}$	1
7	$\lim_{x \to 1} \frac{(\sqrt{x}-1)(2x-3)}{2x^2+x-3}$ is equal to A) 1 B) $1/10$ C) -1/10 D) -1	1
8	If set $A = \{x : x^2 + 5\|x\| + 6 = 0 , x \in R\}$, number of subsets of A are A) 4 B) 16 C) 15 D) 1	1

9	The value of $(i^{2026})^{2027}$ is: A) i B) - i C) 1 D) - 1	1
10	The intercept form of the line x sin2θ + y cosθ = sin θ is A) $\frac{x}{(sec\theta)/2} + \frac{y}{tan\theta} = 1$ B) $\frac{2x}{sec\theta} - \frac{y}{tan\theta} = 1$ C) $\frac{x}{sec\theta} + \frac{y}{cot\theta} = 1$ D) $\frac{x}{(sec\theta)/2} + \frac{y}{(cot\theta)/2} = 1$	1
11	The number of diagonals of a decagon is A) 20 B) 30 C) 35 D) 40	1
12	The length of transverse axis of the hyperbola is $49y^2 - 16x^2 = 784$ is A) 32 B) 16 C) 14 D) 8	1
13	If $R = \{(x, y): x, y \in Z \text{ and } y = 2x - 3\}$ be a relation,then value(s) of b for which $(3, b^2) \in R$ is/are A)$\sqrt{3}$ B) $\sqrt{3}$,$-\sqrt{3}$ C) $-\sqrt{3}$ D) No such value exists	1
14	A person is having a gift card from which he can buy 2 kitchen items and 1 electronic gadget out of 15 kitchen items and 22 electronic gadgets available in the store.The number of ways of selecting items is A) 2210 B) 2310 C) 2450 D) 2640	1
15	The angle between the two straight lines y = (2- $\sqrt{3}$)x + 5 and y = (2 +$\sqrt{3}$)x -7 is A) 60° B) 45° C) 30° D) 15°	1
16	If $-3sinA + 4sin^3A = sin\alpha$,then A = A) 3 α B) $\frac{\alpha}{3}$ C) $-\frac{\alpha}{3}$ D) $\frac{\alpha}{2}$	1
17	A sequence is defined as a_1 = -1, $a_n = \frac{a_{n-1}}{n}$, for $n > 1$. Then a_n in terms of n is : A) $-\frac{1}{n}$ B) $-\frac{1}{n!}$ C) $\frac{(-1)^n}{n!}$ D) $(-1)^n n!$	1
18	The image of the point (-7,5,6) with respect to xy plane is A) (-7,-5,-6) B) (7,-5,-6) C) (7,-5,6) D) (-7,5,-6)	1

Q19 -20 are Assertion-Reasoning based questions. ASSERTION- REASONING QUESTION: Choose one of the following for answering:
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.

19	**Assertion(A):** If sinA + sin B + sinC= -3,then cosA + cosB + cosC =0 **Reason(R):** The sine of any real angle lies from -1 to1.	1
20	**Assertion(A):** $8^{n+1} - 7n - 7$ is always divisible by 49.	1

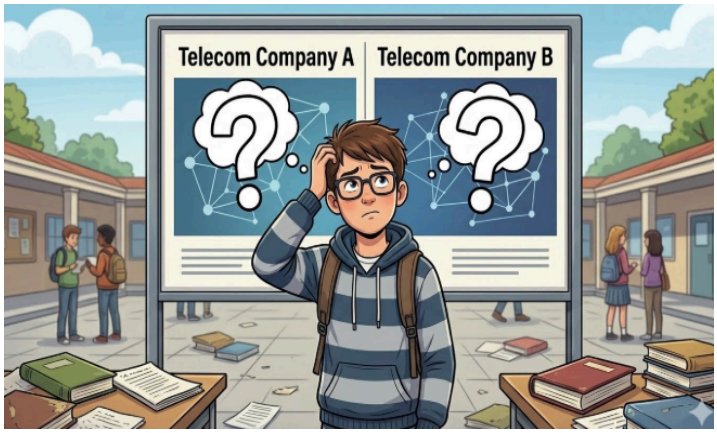
	Reason(R) : $8^n = (1 + 7)^n$	
	Section B (This section comprises of 5 Very short answer (VSA) type questions of 2 marks each.)	
21	Evaluate $\lim_{x \to \frac{\pi}{4}} \frac{\sin x - \cos x}{x - \frac{\pi}{4}}$	2
22	Find a point in yz-plane which is equidistant from the points A (3 ,0 ,0), B(0 ,-1 ,0) and C(0,0,2).	2
23	Let $f(x + \frac{1}{x}) = (x^2 + \frac{1}{x^2})$ for all $x \in R - \{0\}$,then write an expression for $f(x)$ and determine its range.	2
24	A) Find the number of words (with or without meaning) that can be formed using all the letters of the word "REMAINDER" in which all the vowels occur together. **OR** B) In how many ways can 6 boys and 5 girls be seated in a row so that girls occupy even places.	2
25	A) An urn contains 7 white balls, 5 Blue balls and 3 Red balls. If three balls are selected at random then find the Probability of selecting at most 2 blue balls. **OR** B) If A and B are exhaustive events such that P(A) = 0.83 and P(B) = 0.29 then find P (A ∩ B).	2
	Section C (This section comprises of 6 Short answer (SA)type questions of 3 marks each.)	
26	Find the coefficient of x^3in the product of $(2 + x)^5(2x - 1)^4$.	3
27	A) An electric vehicle (EV) is traveling along a straight-line path defined by the equation x + y = 4. At a certain instant, the driver notices the battery is running low. A GPS search reveals two nearby charging stations, P and Q. To reach station P, the vehicle must continue along its current path for 1km, turn to the right, and proceed in a straight line to the coordinates (4, 6). To reach station Q, the vehicle must continue along its current path for 2 km,turn to the left, and proceed in a straight line to the coordinates (-2, 2). From which station he must recharge the vehicle and why? **OR** B) In India, cattle ear tagging is a mandatory part of the National Digital Livestock Mission (NDLM) and the National Animal Disease Control Programme (NADCP). A cow with an ear tag is drinking water from a pond. At a specific instant, the ear tag is located at the position (3,8). Assuming the water surface acts as a plane mirror , find the coordinates of the image of the ear tag with respect to the line x + 3y = 7, lying on the water surface.	3
28	If $\cos x = \frac{-3}{5}$, x lies in the II Quadrant ,find the values of $\sin 2x$ and $\sin\frac{x}{2}$.	3
29	Let $z_1 = 1 - 3i$, $z_2 = 3i + 1$ and , $z_3 = 2 + i$.	3

	(i) Verify Associative Law for Multiplication. (ii) Find Additive inverse of $z_1 + 2z_2 - z_3$.	
30	A) If $U = \{1, 2, 3, 4, 5, 6, \ldots\ldots\ldots, 40\}$, $A = \{x: x \text{ divisible by } 2 \text{ and } 3\}$ $B = \{x: x = n^2, n \epsilon N\}$,then verify that $(A \cap B) \cup (A - B) = A$ **OR** B) For any two sets A and B prove that $if\ A \cup B = A \cap B$, $then\ A = B$	3
31	A farmer wishes to install 2 hand pumps in his field for watering.The farmer moves in the field while watering in such a way that the sum of distances of the farmer from each handpump is always 26m. Also, the distance between the hand pumps is 10 m. (Assuming that both handpumps lies on x-axis).Find the equation of the path traced by farmer.	3
	Section D (This section comprises 0f 4 Long answer (LA)type questions of 5 marks each.)	
32	A) If $sin5A = p\,sinA + q\,sin^3A + r\,sin^5A$,find $p - q + r$. **OR** B) Find the value of $cos\ 10^\circ cos\ 50^\circ cos60^\circ cos70^\circ$.	5
33	The Government of India injects an economic stimulus package of ₹10,000 crores into the economy to boost infrastructure. According to fiscal data, corporate bodies and citizens who receive this money spend exactly 80% of it on domestic goods, services, and wages. The remaining 20% is saved. The recipients of that 80% spending, in turn, also spend 80% of their new income and save the rest. This chain reaction of spending and re-spending continues indefinitely throughout the economy.Find the total amount saved by corporate bodies and citizens after the 10th round . Also, calculate the total increase in economic activity by continuous spending rounds.	5
34	A) Calculate mean, variance and Standard Deviation for the following distribution. **OR** B) Calculate the mean deviation about median for the following data:	5

Class	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 – 90	90 –100
Frequency	3	7	12	15	8	3	2

Class	0 - 10	10 - 20	20 - 30	30 - 40	40-50	50 - 60
Frequency	6	7	15	16	4	2

35	Using first principle, find the derivative of f(x) = $\frac{3x-5}{5x-3}$ and Also, verify it using the quotient rule.	5
	Section E (This section comprises of 3 case study based questions of 4 marks each.)	
36	A preschool educational toy company is manufacturing Geometric blocks for young children .One specific type has different isosceles triangle shaped blocks with equal sides 4cm each but different heights.The height (altitude drawn to the third side) varies and is designated as x cm.  Based on the above information, answer the following: (i) Express the perimeter of one block face,($P(x)$), as a function of x. (1) (ii) Express the area of the block face, $(A(x))$, as a function of x. (1) (iii)a) Find the domain of the perimeter function $P(x)$ based on physical toy constraints. Also, if $m < P(x) < n$. Find the value of m. (2) **OR** (iii) b)Find the domain of the area function $A(x)$ .Also, find the area of the block when height is 2cm . (2)	4
37	During a 2- week period(14 days) Arjika took her umbrella with her on 8 days.It rained on 9 days.Arjika took her umbrella on 5 of the days when it rained.Let A represents the event that Arjika carries an umbrella and R represents an event that it rains. 	4

	If a day from 2 week period is chosen at random then (i) Find P(A) and P(R). (1) (ii) Find the probability that Arjika does not take her umbrella and it rains. (1) (iii) a) Find the probability that Arjika does not take her umbrella and it does not rain. (2) **OR** (iii) b) Find the probability that it rains and Arjika does not take her umbrella or Arjika takes her umbrella but it does not rain. (2)	
38	Telecom company A and B offers a monthly student data plan. Company A and B costs a flat fee of ₹199 and ₹164 per month respectively. This base plan includes a set amount of high-speed data. If a student exceeds their high-speed data limit, the company automatically switches to an overage billing rate, charging an extra ₹15 by company A and ₹17 by Company B for every gigabyte (GB) used over the limit. Rohan wants to select one of the plans . He has set a strict monthly budget for himself and wants his total phone bill to be at most ₹334 per month.Let x represent the number of extra gigabytes (GB) Rohan uses beyond his base plan limit.  (i) Formulate the linear inequality for the plan purchased from telecom company A and B. (2) (ii) Which telecom company should Rohan select and why? (2)	4

MARKING SCHEME
CLASS XI
MATHEMATICS(2026-27)

S.NO.	ANSWERS	MARKS
1	B) [1,15)	1
2	D) IV	1
3	B) 25	1
4	B) 4	1
5	C) U	1
6	C) $2\sqrt{7}$	1
7	C) -1/10	1
8	D) 1	1
9	D) - 1	1
10	A) $\frac{x}{(sec\theta)/2} + \frac{y}{tan\theta} = 1$	1
11	C) 35	1
12	D) 8	1
13	D) No such value exists	1
14	B) 2310	1
15	A) 60°	1
16	C) $-\frac{\alpha}{3}$	1
17	B) $-\frac{1}{n!}$	1
18	D) (-7,5,-6)	1
19	A)Both A and R are true and R is the correct explanation of A.	1
20	D)A is false but R is true	1

21	$\lim_{x \to \frac{\pi}{4}} \frac{\sin x - \cos x}{x - \frac{\pi}{4}}$ $= \lim_{x \to \frac{\pi}{4}} \frac{\sqrt{2}\left[\frac{1}{\sqrt{2}}\sin x - \frac{1}{\sqrt{2}}\cos x\right]}{x - \frac{\pi}{4}}$ $= \lim_{x \to \frac{\pi}{4}} \frac{\sqrt{2}\left[\cos\frac{\pi}{4}\sin x - \sin\frac{\pi}{4}\cos x\right]}{x - \pi/4}$ $= \lim_{x \to \frac{\pi}{4}} \frac{\sqrt{2}\ \sin\left(x - \frac{\pi}{4}\right)}{x - \pi/4}$ $= \sqrt{2} \cdot 1 = \sqrt{2}$	½ ½ ½ ½
22	Let P(0,y,z) be a point in the yz -plane. PA = PB = PC $\Rightarrow (PA)^2 = (PB)^2 = (PC)^2$ $\Rightarrow (-3)^2 + (y)^2 + (z)^2 = (y+1)^2 + z^2 = (y)^2 + (z-2)^2$ $\Rightarrow 9 = 2y+1 = 4 - 4z$ $\Rightarrow y = 4,\ z = -\frac{5}{4}$ Therefore, the point is P(0, 4, $\frac{-5}{4}$)	½ ½ ½ ½
23	$f(x + \frac{1}{x}) = (x^2 + \frac{1}{x^2})$ $\Rightarrow f(x + \frac{1}{x}) = x^2 + \frac{1}{x^2} + 2 - 2 = (x + \frac{1}{x})^2 - 2$ $f(x) = x^2 - 2$ $x^2 \geq 0 \Rightarrow x^2 - 2 \geq -2$ Range = $[-2, \infty)$	1 ½ ½
24	A) Vowels - EAIE Consonants - RMNDR EAIE RMNDR 1 unit Total units = 6 (R repeated 2 times) 6 units can be arranged in $\frac{6!}{2!}$ = 360 Vowels can be arranged among themselves in $\frac{4!}{2!}$ = 12 Number of words formed = 360 x 12 = 4320 **OR** B) The possible arrangement is BGBGBGBGBGB Boys can arrange among themselves in 6! Ways Girls can arrange among themselves in 5! Ways	1 ½ ½ ½ ½

	Total arrangements = 6! × 5! = 86400	½ ½
25	A) Required Probability $= 1 - P(\text{ all are blue })$ $= 1 - \frac{5C_3}{15C_3} = 1 - \frac{2}{91} = \frac{89}{91}$ **OR** B) According to the question P(AUB) =1 We know that P(AUB) = P(A) + P(B) – P (A∩ B) 1= 0.83 +0.29 – P (A∩ B) P (A∩ B)= 0.12	1 1 ½ ½ ½ ½
26	$(2 + x)^5 = 32 + 80x + 80x^2 + 40x^3 + 10x^4 + x^5$ $(2x - 1)^4 = 16x^4 - 32x^3 + 24x^2 - 8x + 1$ Coefficient of x^3 is 32(-32) + 80(24) - 80(8) + 40 = -1024 + 1920 -640 + 40 = 296	1 1 ½ ½
27	A) For station P,distance to the line x + y = 4 for (4,6) is $d_1 = \left\|\frac{4+6-4}{\sqrt{2}}\right\| = \frac{6}{\sqrt{2}} = 3\sqrt{2}$ Total distance travelled to station P is $(1 + 3\sqrt{2})$km = 5.2km(approx) And for station Q, distance to the line x+ y = 4 for (-2,2) is $d_2 = \left\|\frac{-2+2-4}{\sqrt{2}}\right\| = \frac{4}{\sqrt{2}} = 2\sqrt{2}$ Total distance travelled to station Q is $(2 + 2\sqrt{2})$km = 4.8km(approx) Therefore, the driver must choose Station Q which is closer. **OR** B) Let P(h,k) be the image of the ear tag. Therefore, $(\frac{h+3}{2}, \frac{k+8}{2})$ $satisfies\ x + 3y = 7$ $\frac{h+3}{2} + 3(\frac{k+8}{2}) = 7$ $\Rightarrow h + 3k = -13$ Also, slope of the line joining the ear tag and image of ear tag with the given line is -1. $\Rightarrow 3h - k = 1$ Solving gives h = -1, k = -4 Thus, image of ear tag is (-1,-4)	½ 1 1 ½ 1 ½ 1 ½

28	$cosx = \frac{-3}{5}$, x lies in II Quadrant $sin^2x + cos^2x = 1$ $\Rightarrow sin^2x = 1 - (\frac{-3}{5})^2$ $\Rightarrow sin^2x = \frac{16}{25}$ $\Rightarrow sinx = \pm\frac{4}{5}$ As x lies in II Quadrant So , $sinx = \frac{4}{5}$ $sin2x = 2sinx\,cosx = 2(\frac{-3}{5})(\frac{4}{5}) = \frac{-24}{25}$ $(\pi < 2x < 2\pi)$ $\Rightarrow \frac{\Pi}{4} < \frac{x}{2} < \frac{\pi}{2}$ $sin\frac{x}{2} = \sqrt{\frac{1-cosx}{2}}$ $sin\frac{x}{2} = \sqrt{\frac{1+\frac{3}{5}}{2}}$ $sin\frac{x}{2} = \sqrt{\frac{8}{10}} = \sqrt{\frac{4}{5}} = \frac{2}{\sqrt{5}}$ or $\frac{2\sqrt{5}}{5}$	½ ½ ½ ½ ½ ½
29	$z_1 = 1 - 3i$, $z_2 = 3i + 1$ *and* $z_3 = 2 + i$. (i) Associative Law for Multiplication $z_1(z_2 z_3) = (z_1 z_2) z_3$ LHS = $(1 - 3i)[(3i + 1)(2 + i)]$ $= (1 - 3i)(-1 + 7i)$ $= 20 + 10i$ RHS =. $[(1 - 3i)(3i + 1)](2 + i)$ $= 10(2 + i)$ $= 20 + 10i$ Hence Verified (ii) $z_1 + 2z_2 - z_3 = (1 - 3i) + 2(3i + 1) - (2 + i)]$ $= 1 + 2i$ Additive inverse = $-1 - 2i$	½ ½ ½ ½ ½ ½

30	A) $U = \{1, 2, 3, 4, 5, 6, \ldots\ldots\ldots, 40\}$, $A = \{6, 12, 18, 24, 30, 36\}$ $B = \{1, 4, 9, 16, 25, 36\}$ $(A \cap B) = \{36\}$ $(A - B) = \{6, 12, 18, 24, 30\}$ $(A \cap B) \cup (A - B) = \{6, 12, 18, 24, 30, 36\} = A$ LHS=RHS,hence verified. **OR** B) Let x ϵ A $\Rightarrow x \in A \cup B$ $\Rightarrow x \in A \cap B$ (as AUB $= A \cap B$) $\Rightarrow x \in B$ $\therefore A \subset B$ Similarly, B ⊂ A Now, A ⊂ B and B ⊂ A ⇒ A = B Hence verified.	½ ½ ½ ½ ½ 1 ½ ½ ½ ½
31	Since the fixed distance is 26m . Therefore, a = 13 As the distance between both handpumps = 10 m . $\Rightarrow c = 5$ We know, $c^2 = a^2 - b^2$ $\Rightarrow b = 12$ The equation of the path traced by the farmer is $\frac{x^2}{169} + \frac{y^2}{144} = 1$.	½ ½ 1 1
32	A) $sin5A = sin(3A + 2A)$ $sin5A = sin3Acos2A + cos3Asin2A$ $sin5A = (3sinA - 4sin^3A)(1 - 2sin^2A) + (4cos^3A - 3cosA)(2sinAcosA)$ $sin5A = (3sinA - 6sin^3A - 4sin^3A + 8sin^5A) + (8cos^4A - 6cos^2A)sinA$ $= (3sinA - 10sin^3A + 8sin^5A) + (8(1 - sin^2A)^2 - 6(1 - sin^2A))sinA$ $= (3sinA - 10sin^3A + 8sin^5A) + (8(1 + sin^4A - 2sin^2A) - 6(1 - sin^2A))sinA$ $= (3sinA - 10sin^3A + 8sin^5A) + (8sinA + 8sin^5A - 16sin^3A - 6sinA + 6sin^3A)$ $= 5sinA - 20sin^3A + 16sin^5A$	½ ½ ½ ½ ½ ½ ½

	Since $\sin 5A = p\sin A + q\sin^3 A + \mathrm{r}\sin^5 A$ Hence $p = 5, q = -20, r = 16$ Therefore $p - q + r = 5 + 20 + 16 = 41$ **OR** B) $\cos 10^\circ \cos 50^\circ \cos 60^\circ \cos 70^\circ$ $= \frac{1}{2}(cos\ 10^\circ\ cos\ 50^\circ\ cos\ 70^\circ)$ $= \frac{1}{4}[(2cos\ 10^\circ\ cos\ 50^\circ)\ cos\ 70^\circ]$ $= \frac{1}{4}[(cos(10^\circ + 50^\circ) + cos(10^\circ - 50^\circ))\ cos\ 70^\circ]$ $= \frac{1}{4}[(\frac{1}{2} + cos\ 40^\circ)\ cos\ 70^\circ]$ $= \frac{1}{8}(cos\ 70^\circ + 2\ cos\ 40^\circ cos\ 70^\circ)$ $= \frac{1}{8}[cos\ 70^\circ + cos(40^\circ + 70^\circ) + cos(40^\circ - 70^\circ)]$ $= \frac{1}{8}(cos\ 70^\circ + cos\ 110^\circ + \frac{\sqrt{3}}{2})$ $= \frac{1}{8}[2cos(\frac{70^\circ+110^\circ}{2})cos(\frac{70^\circ-110^\circ}{2}) + \frac{\sqrt{3}}{2}]$ $= \frac{1}{8}(0 + \frac{\sqrt{3}}{2})$ $= \frac{\sqrt{3}}{16}$	½ ½ ½ ½ ½ ½ ½ ½ ½ ½
33	The spending and re- spending create a G.P. as follows: 10000, 8000, 6400, 5120,... Amount saved after 10th round = 20% of sum of 10 terms $= \frac{20}{100}\{10000[\frac{1-(\frac{4}{5})^{10}}{1-\frac{4}{5}}]\}$ $= ₹\ 10000[1 - (\frac{4}{5})^{10}]$ crores The total increase in economic activity by continuous spending rounds is given by $S_\infty = \frac{a}{1-r}$ $= \frac{10000}{1-\frac{4}{5}} = ₹\ 50000$ crores	1 1 1 1 1
34	A)	

C.I	f	x	$d = \frac{x-65}{10}$	fd	fd^2
$30-40$	3	35	-3	-9	27
$40-50$	7	45	-2	-14	28
$50-60$	12	55	-1	-12	12
$60-70$	15	65	0	0	0
$70-80$	8	75	1	8	8
$80-90$	3	85	2	6	12
$90-100$	2	95	3	6	18
	$\Sigma f = 50$			$\Sigma fd = -15$	$\Sigma fd^2 = 105$

2 marks for Correct table

$$\text{Mean} = A + h\frac{\Sigma fd}{\Sigma f} = 65 + 10 \times \frac{-15}{50}$$
$$= 65 - 3 = 62$$

1

$$\text{Variance} = h^2\left[\frac{\Sigma fd^2}{\Sigma f} - \left(\frac{\Sigma fd}{\Sigma f}\right)^2\right]$$
$$= 100\left[\frac{105}{50} - \left(\frac{-15}{50}\right)^2\right]$$
$$= 100\left[\frac{5250-225}{2500}\right] = \frac{5025}{25} = 201$$

1

$$\text{Standard deviation} = \sqrt{\text{variance}} = \sqrt{201} = 14.18 \text{ (approx)}$$

1

OR

B)

C. I	f	cf	x	$D = \lvert x-28 \rvert$	fD
$0-10$	6	6	5	23	138
$10-20$	7	13	15	13	91
$20-30$	15	28	25	3	45
$30-40$	16	44	35	7	112

2 marks for Correct table

$40-50$	4	48	45	17	68
$50-60$	2	50	55	27	54
	50				508

$\left(\frac{N}{2}\right)^{th}$ term $= \left(\frac{50}{2}\right)^{th}$ term $= 25^{th}$ term lies in $20-30$ — 1

$$\text{Median} = L + \left(\frac{N}{2} - C \cdot f\right) h/f$$

$$= 20 + \frac{25-13}{15} \times 10 = 20 + 8 = 28$$ — 1

Mean Deviation about Median $= \frac{\Sigma fD}{\Sigma f} = \frac{508}{50} = 10.16$ — 1

35

$$f(x) = \frac{3x-5}{5x-3}$$

$$f(x+h) = \frac{3(x+h)-5}{5(x+h)-3}$$ — ½

we know that

$$f'(x) = \lim_{h \to 0} \frac{f(x+h)-f(x)}{h}$$

$$= \lim_{h \to 0} \frac{\frac{3x+3h-5}{5x+5h-3} - \frac{3x-5}{5x-3}}{h}$$ — 1

$$= \lim_{h \to 0} \frac{(15x^2-9x+15xh-9h-25x+15)-(15x^2-25x+15xh-9x-25h+15)}{h(5x+5h-3)(5x-3)}$$

$$= \lim_{h \to 0} \frac{16h}{h(5x+5h-3)(5x-3)}$$ — 1

$$= \frac{16}{(5x-3)^2}$$ — ½

verification

$$f(x) = \frac{3x-5}{5x-3}$$

$$f'(x) = \frac{(5x-3)(3)-(3x-5)(5)}{(5x-3)^2}$$ — 1

$$= \frac{15x-9-15x+25}{(5x-3)^2}$$

$$= \frac{16}{(5x-3)^2}$$ — 1

36	(i) $P(x) = 8 + 2\sqrt{16 - x^2}$ $(ii) A(x) = x\sqrt{16 - x^2}$ $(iii)a) P(x) = 8 + 2\sqrt{16 - x^2}$ The expression inside the square root must be positive i.e. $16 - x^2 > 0 \Rightarrow x^2 < 16$ $\Rightarrow -4 < x < 4$ .Also the height x must be positive$(x > 0)$ Therefore, Domain of $P(x) = (0, 4)$ $8 < P(x) < n$ so $m = 8$ **OR** $(iii)b) A(x) = x\sqrt{16 - x^2}$ The height x must be positive $(x > 0)$ and the term inside the square root must yield a real, non - zero base i.e. $16 - x^2 > 0 \Rightarrow x^2 < 16 \Rightarrow -4 < x < 4$ Therefore, Domain of $A(x) = (0, 4)$ $A = x\sqrt{16 - x^2}$ $A = 2\sqrt{16 - 4}$ $A = 2\sqrt{12} = 4\sqrt{3}$ sq.cm.	1 1 ½ ½ 1 ½ ½ 1
37	(i)P(A) = $\frac{8}{14}$, P(R) = $\frac{9}{14}$ (ii) Required Probability $= P(A' \cap R)$ $= P(R) - P(A \cap R)$ $= \frac{9}{14} - \frac{5}{14} = \frac{2}{7}$ (iii) a) Required Probability $= P(A' \cap R') = P(A \cup R)'$ $= 1 - P(A \cup R)$ $= 1 - [P(A) + P(R) - P(A \cap R)]$ $= 1 - \left[\frac{8}{14} + \frac{9}{14} - \frac{5}{14}\right]$ $= \frac{1}{7}$ **OR** iii) b)	½ + ½ ½ ½ ½ ½ ½

	Required Probability $= P(A \cap R') \cup P(A' \cap R)$ $= P(A) - P(A \cap R) + P(R) - P(A \cap R)$ $= \frac{8}{14} - \frac{5}{14} + \frac{9}{14} - \frac{5}{14} = \frac{1}{2}$	½ 1 ½
38	(i) For Company A 199 + 15 x ≤ 334 For Company B 164 + 18 x ≤ 334 (ii) For company A 199 + 15 x ≤ 334 15 x ≤ 135 x ≤ 9 For Company B 164 + 17 x ≤ 334 17 x ≤ 170 x ≤ 10 Rohan should select Telecom company B For the same bill Telecom Company B will give more Gigabyte(GB).	1 1 ½ ½ ½ ½

CLASS XI

BIOLOGY (044)

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 labelled diagrams should be drawn.

SECTION A

1. Select the correct statement regarding viruses.
   a) They are always considered living.
   b) They are always considered non-living.
   c) They show living characteristics only inside a host cell.
   d) They perform metabolism outside a host.

2. A flower has a tricarpellary, syncarpous ovary with 10 ovules in each carpel. Calculate the total number of ovules.

   a) 10 b) 20 c) 30 d) 40

3. A person loses a large amount of water through sweating without replacing the lost fluids. Which hormone is expected to increase in secretion to conserve water?

   a) Insulin b) Thyroxine c) ADH d) Glucagon

4. A football player suddenly changes direction while running. Which component of the knee joint helps to minimise friction between the articulating surfaces?

   a) Tendon b) Ligament c) Synovial fluid d) Subcutaneous fat

5. Identify the fish that possesses an air bladder.




a) b) c) d)

6. Choose the statements that are correct about Bidder's canal.

i) It is present in the ovary of the female frog and enters the kidney through the oviduct.

ii) It is present in the kidney of the male frog.

iii) Vasa efferentia that arise from the testes enter the kidney and open into Bidder's canal.

iv) Bidder's canal communicates with the urinogenital duct, which opens into the cloaca.

a) i and ii. b) ii, iii and iv c) i, ii and iii d) iii and iv

7. The group attached to the central alpha carbon that determines the chemical identity, polarity, and function of an amino acid is

a) The amino group b) The hydrogen atom

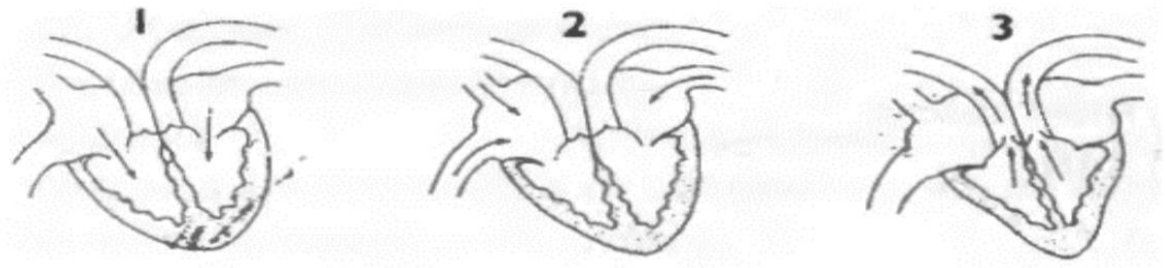
c) The carboxyl group d) The side chain (R group)

8. The primary function of the kinetochore during the eukaryotic cell cycle is

a) Telomere length maintenance b) Ribosomal RNA synthesis

c) Spindle microtubule arrangement d) DNA replication initiation.

9. The following diagrams show three stages in the cardiac cycle. Select the correct sequence-



a) 2,3,1 b) 1,2,3 c) 2,1,3 d) 3,1,2

10. When a neuron is not conducting any impulse, the axonal membrane is:

a) More permeable to K^+ than to Na^+

b) More permeable to Na^+ than to K^+

c) Equally permeable to K^+ and Na^+

d) Impermeable to both K^+ and Na^+

11. A student measures the gases exchanged during respiration in a tissue and records the following:

Oxygen consumed = 10 mL

Carbon dioxide released = 7 mL

Which of the following is the most likely respiratory substrate?

a) Carbohydrates b) Fats c) Organic acids d) Ethanol

12. Match the regions of the human brain in Column I with their primary functions listed in Column II:

Column I (Brain Region)	Column II (Primary Function)
I. Corpus callosum	a. Regulation of body temperature and urge for eating/drinking
II. Limbic system	b. Connects the left and right cerebral hemispheres
III. Hypothalamus	c. Regulation of sexual behavior and emotional expressions
IV. Cerebellum	d. Provides additional space for neurons and coordinates balance

a) I-b, II-c, III-a, IV-d

b) I-b, II-a, III-d, IV-c

c) I-a, II-b, III-c, IV-d

d) I-d, II-c, III-b, IV-a

12. A student measures the gases exchanged during respiration in a tissue and records the following:

Oxygen consumed = 10 mL

Carbon dioxide released = 7 mL

Which of the following is the most likely respiratory substrate?

a) Carbohydrates b) Fats c) Organic acids d) Ethanol

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): The action spectrum of and the absorption spectrum of chlorophyll a do not show a complete 100% overlap across all wavelengths.

Reason (R): Accessory pigments (like chlorophyll b, xanthophylls, and carotenoids) absorb light at other wavelengths and transfer the energy to chlorophyll a, enabling photosynthesis to occur at those wavelengths.

14. Assertion (A): The leaflet of a compound leaf is not considered a true leaf.

Reason (R): An axillary bud is present in the axil of a petiole of both simple and compound leaves, but not in the axil of leaflets.

15. Assertion (A): The heart rate of an individual can easily be calculated by counting the number of QRS complexes recorded in a given time period.

Reason (R): Each QRS complex corresponds to the repolarization of the atria, marking the end of the cardiac cycle.

16. Assertion (A): Mesosomes help in cell wall formation, DNA replication, and respiration in bacteria.

Reason (R): Mesosomes are extensions of the plasma membrane into the cell in the form of vesicles, tubules, and lamellae.

SECTION B

17. *Funaria* is often referred to as the 'amphibian of the plant kingdom'. Distinguish between its gametophytic and sporophytic phases with respect to their ploidy and nutritional dependence.

18. Leaf A with an area of 15 cm^2 grows to 20 cm^2 in 1 week. Leaf B with an area of 50 cm^2 grows to 55 cm^2 in 1 week. Compare their Absolute Growth Rates (AGR) and Relative Growth Rates (RGR).

19. A drug blocks the release of neurotransmitters from the presynaptic neuron. Although the nerve impulse reaches the axon terminal, the next neuron does not generate an impulse.

a) Why does synaptic transmission fail?

b) Would an electrical synapse be affected in the same way? Give a reason.

Or

A researcher develops a drug that completely blocks the conversion of angiotensin I to angiotensin II.

Based on your knowledge of RAAS, answer the following:

a) How will this affect blood pressure?
b) What will be the effect on aldosterone secretion?

20. State two points of difference between the following:

a) Anaphase of Mitosis and Anaphase I of Meiosis
b) Zygotene and Pachytene

21. Classify the following compounds into its respective group of secondary metabolites:

a) Morphine b) Concanavalin A c) Anthocyanin d) Curcumin

SECTION C

22. Given below are the names of few pathogenic diseases. Name the organisms which cause these diseases and identify the kingdom to which they belong:

a) Malaria b) Sleeping sickness c) Rust of wheat

23. Draw a neat and labelled diagram of the digestive system of *Rana tigrine*. (any four labels)

24. a) Compare the microtubular arrangement of a centriole with that of a cilium. Write the standard mathematical notation for both.

b) Identify the primary globular protein that constitutes the proteinaceous filaments of a centriole.

25. During a laboratory investigation, two muscle fibres (A and B) were stimulated under identical conditions.

Muscle Fibre A: Calcium ions were released normally, but ATP was completely depleted after a few contraction cycles.

Muscle Fibre B: ATP was available, but the sarcoplasmic reticulum failed to release calcium ions.

Based on the sliding filament theory, answer the following:

(a) Which muscle fibre will fail to initiate contraction? Give a reason.

(b) Which muscle fibre will remain in a contracted state? Explain why.

(c) State the specific roles of calcium ions and ATP in one complete cycle of muscle contraction.

OR

A severe diabetic patient shows acute ketoacidosis. Blood analysis reveals a significant drop in systemic blood pH (acidosis) along with an elevated body temperature due to an underlying infection. Predict how these metabolic changes affect the oxygen dissociation curve of haemoglobin and explain the physiological advantage of this shift for tissue oxygenation.

26. A woman with blood group O Rh-negative (O−) delivers her first child, who has blood group B Rh-positive (B+). She subsequently experiences multiple pregnancies that end in foetal loss because the foetuses do not survive. Identify the condition. What is the most probable underlying cause? Explain the mechanism.

27. Give reason:

a) Tea bushes are regularly pruned at the shoot tips in tea plantations.
b) Deep water rice plants quickly elongate their petiole or internodes when water levels rise.
c) Spraying sugarcane crops with GA_3 increases sugar yield per hectare.

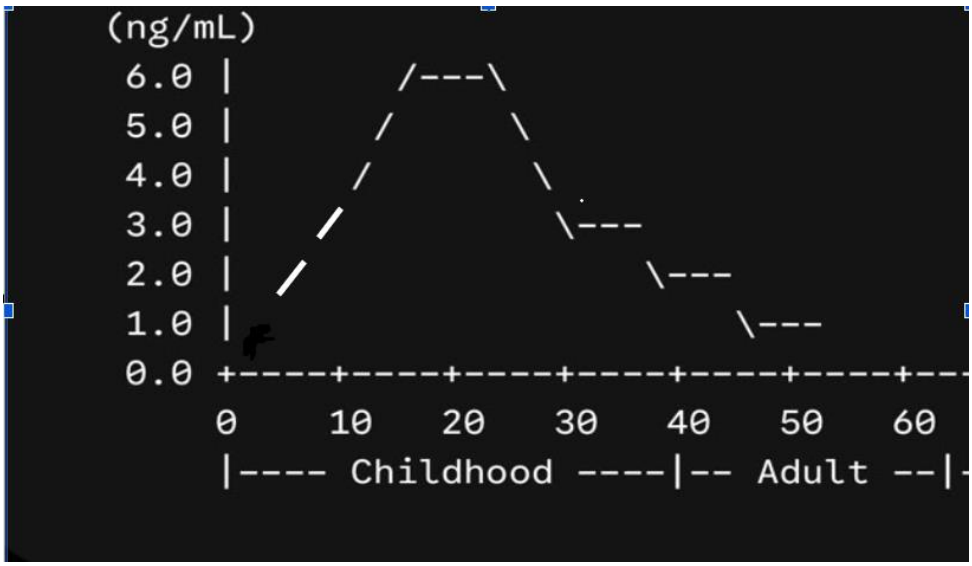
28. Arrange the following taxonomic categories in ascending order (from lower to higher rank):

Diptera, Insecta, Arthropoda, Muscidae

Also, write the scientific name of an organism that belongs to this taxonomic classification.

SECTION D

29. Given below is the graph depicting the level of a particular hormone across various age groups in humans.

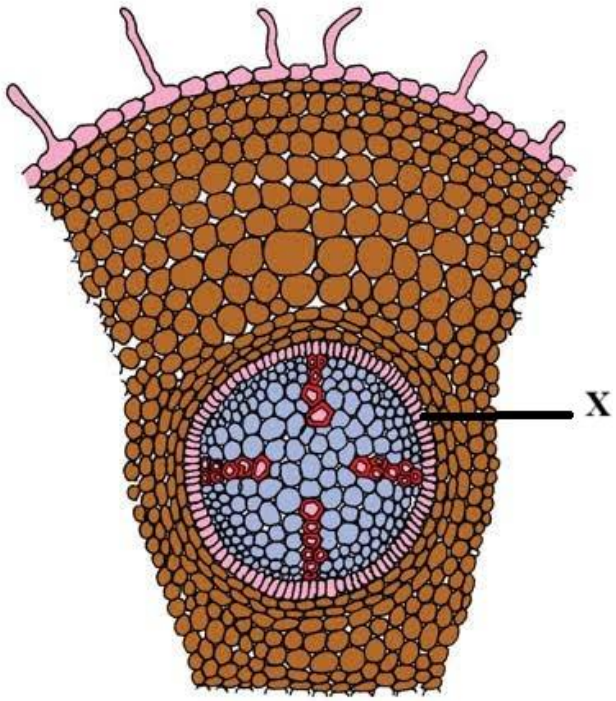


a) Identify the hormone and its source gland.

Or

b) Identify the biochemical nature of the hormone and location of its receptor on the target cell.
c) Analyse the pattern of hormonal change with age.
d) Explain the reason for the pattern observed and its impacts on the health of the person.

30. During a practical session, a student observed a section under the microscope as shown in the figure.



a) Identify whether the section depicts a stem or a root. Justify your answer.
b) Give an example of a plant from where the above section can be obtained.
c) Name the layer X and state its main structural feature which helps it perform its function.

Or

d) How are protoxylem and metaxylem placed in relation to each other in this section? What is this condition known as?

SECTION E

31.The anatomical features of five unidentified animal specimen (A-E) are tabulated below. Analyse the features and answer the following questions -

Specimen	Germ Layers	Body Cavity (Coelom)	Body Symmetry	Circulatory System
A	Diploblastic	Non-coelomate	Radial	Absent
B	Triploblastic	Pseudocoelomate	Bilateral	Absent

C	Triploblastic	Acoelomate	Bilateral	Absent
D	Triploblastic	Coelomate	Radial (Adult)	Absent
E	Triploblastic	Coelomate	Bilateral	Open type

i) Identify the phylum to which specimen A and E belong, respectively.

ii) Name the structures responsible for excretion or osmoregulation in Specimen B and Specimen C.

iii) Name the most distinctive feature present in specimen D that is characteristic of its phylum.

OR

a) A student observes two compatible fungal hyphae under a microscope. Explain the sequence of events that leads to formation of sexual spores.

b) Kingdom Protista is often considered as an evolutionary link between Kingdom Monera and Fungi. Give reason.

c) 'Diatomaceous earth' has many industrial applications. Justify.

32. a) Compare the process of chemiosmosis in chloroplasts (photophosphorylation) and mitochondria (oxidative phosphorylation) based on:

i) Primary source of energy used to pump protons.

ii) Site of proton accumulation (where the proton gradient builds up).

iii) Direction of proton flow through ATP synthase during ATP synthesis.

b) Predict what will happen to ATP synthesis in a thylakoid suspension if an ionophore (a chemical that makes membranes permeable to protons) is added during photosynthesis. Explain the physiological reasoning behind your answer.

OR

a) The Calvin cycle requires a specific input of ATP and NADPH for every molecule of CO_2 fixed.

i) State the exact number of ATP and NADPH molecules used per CO_2 molecule, specifying how many are used in the reduction and regeneration steps.

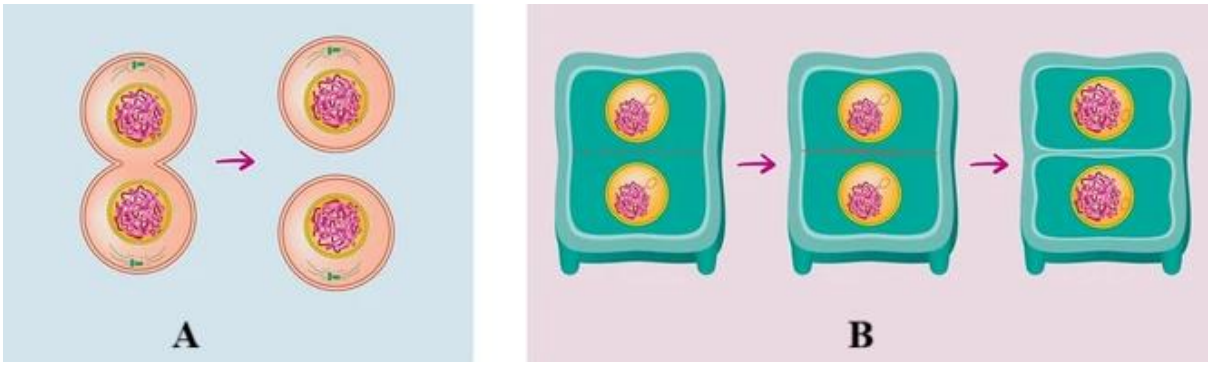
ii) Why is the regeneration step crucial for the continuous operation of the Calvin cycle?

b) Water is a reactant in light reactions, but its effect as a limiting factor on the overall rate of photosynthesis is mostly indirect. Give two indirect ways in which water stress reduces the photosynthetic rate.

33. a) A cell in G1 phase has a DNA content of 2C and a chromosome count of 2n=46. What will be its DNA content and chromosome number at the following stages of the cell cycle?

i) Late S phase ii) Metaphase iii) Anaphase

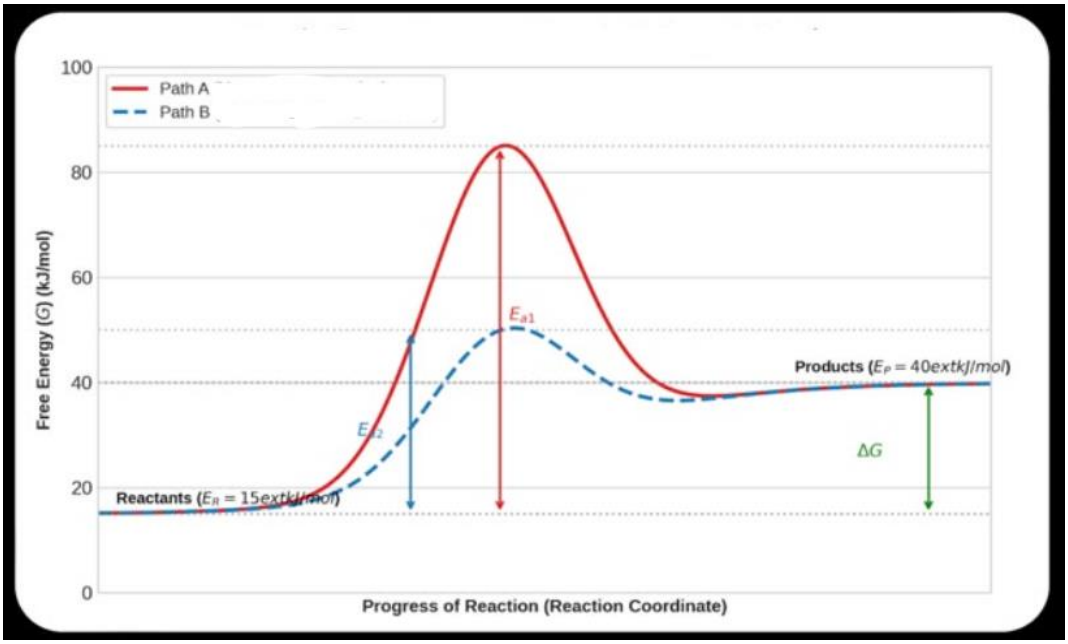
b) Observe the following figures:



Compare and contrast the processes depicted in A and B above.

OR

a) Observe the graph given below exhibiting the relationship between free energy (G) and progress of reaction:



i) Identify the type of reaction, whether exothermic or endothermic. Give one reason.

ii) Explain the reason for the difference observed between E_{a1} and E_{a2}.

iii) In the given potential energy profile, what do the peak points of Path A and Path B represent in terms of molecular state during a chemical reaction?

b) An enzyme catalyses the conversion of substrate S into product P. A molecule X, which has a structure similar to S, is added to the reaction. The reaction rate decreases. However, when the concentration of S is increased, the reaction rate returns to normal.

Answer the following:

i) Why does molecule X reduce the reaction rate?

ii) Mention one practical application of this phenomenon in medicine.

BIOLOGY (044) CLASS XI SAMPLE PAPER

Marking Scheme

(Marking scheme and Hints to solution)

Note: (Any other relevant answer not given here in but given by the candidate be also suitably awarded)

Q.No.	Value Points / Key points	Marks allotted to each value point/key point	Total marks
1	c) They show living characteristics only inside a host cell.	1	1
2	c) 30	1	1
3	c) ADH (Anti-Diuretic Hormone / Vasopressin)	1	1
4	c) Synovial fluid	1	1
5	c)	1	1
6	b) ii, iii and iv	1	1
7	d) The side chain (R group)	1	1
8	c) Spindle microtubule arrangement / attachment	1	1
9	c) 2, 1, 3	1	1
10	a) More permeable to K^+ than to Na^+	1	1
11	b) Fats	1	1
12	a) I-b, II-c, III-a, IV-d	1	1
13	a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.	1	1
14	a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.	1	1
15	c) Assertion is true, but Reason is false.	1	1
16	b) Both Assertion and Reason are true but Reason is the not the correct explanation of Assertion.	1	1

17	Gametophytic Phase vs. Sporophytic Phase in Funaria: 1.Ploidy: Gametophyte is haploid (n), while Sporophyte is diploid (2n). 2. Nutritional Dependence: Gametophyte is independent, photosynthetic, and dominant. The sporophyte is partially or completely dependent on the gametophyte for anchorage and nutrition (water & minerals).	0.5 mark 0.5 mark 0.5 mark 0.5 mark	2
18	Calculations of Growth Rates: 1. Absolute Growth Rate (AGR) = Final area - Initial area • Leaf A: AGR = 20 cm² - 15 cm² = 5 cm²/week • Leaf B: AGR = 55 cm² - 50 cm² = 5 cm²/week Conclusion: Both leaves have equal Absolute Growth Rate (5 cm²/week). 2. Relative Growth Rate (RGR) = (Absolute growth / Initial area) × 100 • Leaf A: RGR = (5 / 15) × 100 = 33.33% • Leaf B: RGR = (5 / 50) × 100 = 10% Conclusion: Leaf A shows a higher Relative Growth Rate than Leaf B.	0.5 mark 0.5 mark 0.5 mark 0.5 mark	2
19	a) In a chemical synapse, the nerve impulse reaching the presynaptic axon terminal normally triggers the release of neurotransmitters into the synaptic cleft. If neurotransmitter release is blocked, the neurotransmitter cannot bind to receptors on the postsynaptic membrane. Therefore, the next neuron does not generate a new impulse. b) No. Electrical synapses transmit impulses directly through gap junctions between adjacent neurons. They do not depend on the release of neurotransmitters, so blocking neurotransmitter release would not affect transmission in the same way. OR a) Effect on Blood Pressure: Angiotensin II is a powerful vasoconstrictor. Blocking its formation causes vasodilation, resulting in a decrease in blood pressure. b) Effect on Aldosterone Secretion: Angiotensin II stimulates adrenal cortex to secrete aldosterone. Blocking it will inhibit/decrease aldosterone secretion, reducing Na+ and water reabsorption in distal tubules.	1 mark 0.5 +0.5 mark OR 1 mark 1 mark	2
20	(i) Anaphase of Mitosis vs. Anaphase I of Meiosis:		

	• Mitotic Anaphase: Centromeres split and sister chromatids separate to opposite poles. • Anaphase I: Homologous chromosomes separate to opposite poles while sister chromatids remain associated at their centromeres. (ii) Zygotene vs. Pachytene: • Zygotene: Pairing of homologous chromosomes (synapsis) occurs with formation of synaptonemal complex / bivalents. • Pachytene: Crossing over (exchange of genetic material) occurs between non-sister chromatids mediated by recombinase enzyme.	0.5 mark 0.5 mark 0.5 mark 0.5 mark	2
21	a) Morphine: Alkaloids b) Concanavalin A: Lectins c) Anthocyanin: Pigments d) Curcumin: Drugs	0.5 mark 0.5 mark 0.5 mark 0.5 mark	2
22	a) Malaria: Caused by Plasmodium (P. vivax, P. falciparum). Kingdom: Protista. b) Sleeping sickness: Caused by Trypanosoma gambiense. Kingdom: Protista. c) Rust of wheat: Caused by Puccinia graminis. Kingdom: Fungi.	0.5 + 0.5 mark 0.5 + 0.5 mark 0.5 + 0.5 mark	3
23	Pg 81, Fig 7.2 NCERT book	1 mark (diag.) 0.5 X 4= 2 (any 4 labels)	3
24	Centriole vs. Cilium Microtubular Arrangement: a) Microtubular Notation & Arrangement: • Centriole: 9 + 0 arrangement (9 peripheral triplet fibrils of tubulin without central microtubules). • Cilium: 9 + 2 arrangement (9 peripheral doublet microtubules and 2 central singlet microtubules connected by bridge/sheath). b) Primary Globular Protein: • Tubulin protein.	1 mark 1 mark 1 mark	3
25	Muscle Contraction Dynamics (Sliding Filament Theory): (a) Muscle Fibre B will fail to initiate contraction. Reason: Calcium ions bind to troponin on actin filaments, removing the masking of active sites for myosin. Without Ca^{2+} release, active sites remain blocked.	1 mark	

	(b) Muscle Fibre A will remain in a contracted state (Rigor state). Reason: ATP binding to myosin head is required to break the cross-bridge between actin and myosin. In absence of ATP, cross-bridges cannot detach. (c) Specific Roles: • Ca^{2+}: Binds to subunit of troponin to unmask active sites on actin. • ATP: Hydrolysis provides energy for myosin head to bind to exposed active sites on actin to form a cross bridge; new ATP binding detaches myosin head from actin. OR • Effect on Curve: Both acidosis (decreased pH) and elevated body temperature shift the Oxygen Dissociation Curve to the RIGHT. • Physiological Advantage: A rightward shift decreases the affinity of hemoglobin for oxygen. This facilitates enhanced unloading/release of oxygen to metabolically active tissues suffering from high oxygen demand.	1 mark 0.5 + 0.5 mark OR 1 mark 1 +1 marks	3
26	Erythroblastosis Foetalis • Underlying Cause: Rh incompatibility between Rh-negative mother and Rh-positive fetus. • Mechanism: 1. During first delivery, maternal blood gets exposed to small amount of Rh+ blood from fetus, causing mother to produce anti-Rh antibodies (IgG). 2. In subsequent pregnancies, anti-Rh antibodies leak across placenta into fetal circulation of Rh+ fetus. These antibodies destroy fetal RBCs (hemolysis), leading to severe anemia, jaundice, and fetal loss.	0.5 mark 0.5 mark 1 mark 1 mark	3
27	a) Pruning Tea Bushes: Removal of shoot tips removes apical dominance caused by Auxin, releasing lateral buds from inhibition and promoting bushy lateral branching (dense leaf growth). b) Deep Water Rice Elongation: Ethylene promotes rapid internode and petiole elongation in deep water rice plants, helping leaves stay above water surface for gas exchange. c) Spraying Sugarcane with GA3: Gibberellins (GA3) promote stem elongation/internodal elongation in sugarcane, increasing stem length and thereby increasing sugar yield up to 20 tonnes/hectare.	1 mark 1 mark 1 mark	3
28	Taxonomic Hierarchy & Scientific Name: 1. Ascending Order (Lower to Higher Rank):		

	Muscidae (Family) -> Diptera (Order) -> Insecta (Class) -> Arthropoda (Phylum) 2. Scientific Name: *Musca domestica* (Housefly)	2 marks (0.5 x 4) 1 mark	3
29	a) Identification: Hormone is Thymosin; Source gland is Thymus Gland. OR b) Biochemical Nature: Peptide/Protein hormone; Receptors located on Cell Membrane (Extracellular surface). c) Pattern Analysis: Thymosin level peaks during childhood/puberty (~15-20 yrs) and undergoes progressive decline/degeneration with advancing adult age. d) Reason & Health Impact: Thymus gland undergoes age-related atrophy/degeneration. As a result, thymosin production decreases, leading to decreased T-cell differentiation, weakening cell-mediated and humoral immunity in old age.	1+ 1 mark Or 1+ 1 mark 1 mark 1 mark	4
30	a) Dicot Root. Justifications: Presence of unicellular root hairs, radial vascular bundles, and exarch xylem (protoxylem towards periphery, metaxylem towards center). (any one) b) Plant Example: Sunflower (*Helianthus annuus*) / Bean / Pea root. c) Layer X is Endodermis. Feature: Presence of Casparian strips (suberin deposition) on radial and tangential walls, making it impermeable to water and forcing symplastic transport. OR Protoxylem & Metaxylem Arrangement: Protoxylem lies towards outside/periphery and metaxylem towards centre. This condition is known as Exarch.	0.5 mark 0.5 mark 1 mark 1 mark 1 mark OR 1 + 1 mark	4
31	a) (i) Phylum A: Ctenophora / Coelenterata (Cnidaria); Phylum E: Arthropoda. (ii) Specimen B: Excretory tube; Specimen C: Flame cells (iii) Specimen D: Water vascular system OR a) Sequence of Events in Fungal Sexual Reproduction: 1. Plasmogamy: Fusion of protoplasms between two motile or non-motile gametes. 2. Karyogamy: Fusion of two haploid nuclei forming a diploid zygote.	1+ 1 marks 1+1 marks 1 mark OR 3 marks (1x3)	

	3. Meiosis: Zygote undergoes reductional division leading to haploid sexual spores (e.g. ascospores, basidiospores). b) Reasons: (i) Protista as Link: Unicellular like moneran but with more advanced level of organisation. (Well-developed nucleus/ membrane bound organelles) Eukaryotic and saprophytic/ produce spores like Fungi. (ii) Diatomaceous Earth Uses: Indestructible cell walls embedded with silica accumulate forming diatomaceous earth; used in polishing, filtration of oils and syrups. (any 2)	0.5 mark 0.5 mark 1 mark	5
32	a) Chemiosmosis Comparison: i) Energy Source: Light energy (photons) in chloroplasts vs Chemical oxidation of substrates (NADH/FADH2) in mitochondria. ii) Proton Accumulation Site: Thylakoid lumen in chloroplasts vs Intermembrane space in mitochondria. iii) Direction of Proton Flow: From Thylakoid Lumen -> Stroma in chloroplasts vs Intermembrane Space -> Matrix in mitochondria. b) Effect of Ionophore on Thylakoids: • Impact: ATP synthesis will STOP / BE SEVERELY INHIBITED. • Reasoning: ATP synthesis relies on a proton gradient across thylakoid membrane. An ionophore dissipates the proton gradient by allowing H^+ to leak freely, eliminating proton motive force through F0-F1 ATP synthase. OR a) Calvin Cycle Energy Requirements: i) Per CO2 fixed: 3 ATP and 2 NADPH used in total. - Reduction step: 2 ATP + 2 NADPH - Regeneration step: 1 ATP + 0 NADPH ii) Crucial nature of Regeneration: Uninterrupted supply of RuBP (ribulose 1,5-bisphosphate), the primary CO2 acceptor, is required for continuous cycle continuation. b) Indirect Effects of Water Stress: 1. Stomatal closure reduces CO2 availability. 2. Leaf wilting reduces leaf surface area and metabolic activity of photosynthetic enzymes.	1 mark 1 mark 1 mark 2 marks (1+1) OR 1 marks 1 mark 2 marks (1+1)	5
33	DNA Content and Chromosome Count across Cell Cycle: [Given: G1 phase has DNA = 2C, Chromosomes = 2n = 46] i) Late S Phase: DNA content = 4C | Chromosome count = 46 (2n)	1 mark	

	ii) Metaphase: DNA content = 4C | Chromosome count = 46 (2n) iii) Anaphase: DNA content = 4C | Chromosome count = 92 (split centromeres form 92 daughter chromosomes) b) Cytokinesis Comparison (Figure A vs B): • Figure A: Cytokinesis in Animal Cell via Cell Furrow formation (centripetal direction - outside to inside). • Figure B: Cytokinesis in Plant Cell via Cell Plate formation / (centrifugal direction - inside to outside). OR a) Energy Profile Analysis: i) Type of Reaction: Endothermic reaction. Reason: Free energy of products (Ep = 40 kJ/mol) is higher than reactants (Er = 15 kJ/mol) (ΔG is positive). ii) Difference between Ea1 and Ea2: Ea1 is activation energy of uncatalyzed reaction, whereas Ea2 is activation energy lowered by enzyme catalyst. iii) Peak Points: Represent Transition State (unstable high-energy activated complex). b) Competitive Inhibition Dynamics: i) Molecule X is a Competitive Inhibitor that closely resembles substrate S and competes for active site of enzyme. ii) Medical Application: Control of bacterial pathogens, Malonate inhibiting succinic dehydrogenase.	1 mark 1 mark 2 marks (1+1) OR 1.5 marks 1 mark 0.5 mark 1 mark 1 mark	5

	Sample Paper – 2026-27 **Accountancy** **Class – XI**	
	Time allowed: 3 Hours **Max. Marks: 80**	
	General Instructions 1. Question Paper is divided into two parts. Part – A (56 Marks) and Part – B (24 Marks) 2. Both parts are compulsory. 3. All parts of the question should be attempted at one place. 4. Write down the question number clearly before attempting the question. 5. 25% of the marks allotted to the question would be deducted for not using correct format, narrations and working notes. 6. Nothing should be written on the Question paper. 7. Scheme of choice i. 1 Mark – 7 questions (2 from unit 1, 4 from unit 2 and 1 from unit 3) ii. 3 Marks – 2 questions (1 from unit 1 and 1 from unit 2) iii. 4 Marks – 1 question (1 from unit 2) iv. 6 Marks – 2 questions (1 from unit 2 and 1 from unit 3)	
Q.No.	**PART – A**	**Marks**
1	Due to which of the following, 'Contingent liabilities' are shown in the Balance Sheet: (a) Dual Aspect Concept (b) Convention of Full Disclosure (c) Convention of Materiality (d) Going Concern Concept	1
2	At the time of good sold Output CGST/SGST/IGST account is ..... because it is……. (a) Credited, Revenue/income (b) Debited, Asset (c) Credited, Accrued Income (d) Credited, Liability	1
3	Which of the following is not a limitation of accounting? (a) Affected by window dressing (b) Based on historical cost (c) Omission of qualitative information (d) Records transactions in money terms	1
4 A	Use of common unit of measurement and common format of reporting promotes; (a) Comparability (b) Understandability (c) Relevance (d) Reliability	1
	Or	
4 B	The primary qualities that make accounting information useful for decision-making are: (a) Relevance and free from bias (b) Reliability and comparability (c) Comparability and consistency (d) Relevance and Consistency	1
5 A	Ram and Sons earned ₹ 25,00,000 from the services provided during the year ending 31/3/26. Out of this, he received ₹ 22,50,000 during the year. He incurred expenses ₹ 12,50,000 out of which ₹ 1,00,000 is still outstanding at the end of the year. Additionally, they also received income of ₹ 50,000 related to the year ended 31/3/2025 and also paid ₹ 25,000 expenses for the year ended 31/3/25 in the current year (31/3/26). Profit on the Cash basis of accounting will be:	1

	(a) ₹ 11,25,000 (b) ₹ 12,50,000 (c) ₹ 13,50,000 (d) ₹ 10,00,000	
	Or	
5 B	Ram and Sons earned ₹ 25,00,000 from the services provided during the year ending 31/3/26. Out of this, he received ₹ 22,50,000 during the year. He incurred expenses ₹ 12,50,000 out of which ₹ 1,00,000 is still outstanding at the end of the year. Additionally, they also received income of ₹ 50,000 related to the year ended 31/3/2025 and also paid ₹ 25,000 expenses for the year ended 31/3/25 in the current year (31/3/26). Profit on the Accrual basis of accounting will be: (a) ₹ 22,50,000 (b) ₹ 12,50,000 (c) ₹ 10,00,000 (d) ₹ 11,00,000	1
6	Objective of preparing Trial Balance is: (a) To ascertain the Profit/Loss of the business (b) To ascertain the financial position of the business (c) To ascertain the accuracy of the accounts (d) To ascertain the arithmetic accuracy of the accounts	1
7	M/s Gupta Traders purchased goods worth ₹ 80,000 from M/s Sharma & Co. The supplier allowed 10% Trade Discount. Payment was made immediately, and the supplier also allowed 2% Cash Discount on the amount payable after trade discount. What amount will Gupta Traders actually pay? (a) ₹ 72,000 (b) ₹ 70,560 (c) ₹ 70,000 (d) ₹ 71,200	1
8	When goods are lost by fire then 'Loss of Goods by Fire Account' is debited with (a) Cost of goods sold. (b) Cost of goods sold plus Gross Profit. (c) Cost of goods sold less Gross Profit. (d) Cost of goods purchased.	1
9	Find the correct statement: (a) Credit the increase in assets (b) Credit the increase in expenses (c) Debit the increase in revenue (d) Credit the increase in capital	1
10	A Pass Book is a copy of (a) A customer's account in the bank's books (b) Cash Book relating to bank column (c) Cash Book relating to cash column (d) Firm's receipts and payments	1
11	Which of the following is both a book of Journal and Ledger? (a) Cash Book (b) General Journal (c) Purchases Journal (d) Sales Journal	1

12 A — 1

Match the following:

Column 1	Column 2
1. Cash memo	W. Prepared when cash is paid
2. Debit voucher	X. Purchaser of goods makes this when he has been overcharged
3. Debit note	Y. Used to deposit cash or cheques in bank
4. Pay-In slip	Z. Prepared by the seller at time of cash sales

Options:

(a) 1Z, 2W, 3X, 4Y
(b) 1X, 2Y, 3W, 4Z
(c) 1W, 2X, 3Y, 4Z
(d) 1Z, 2Y, 3X, 4W

Or

12 B — 1

Ajeet has returned goods worth ₹ 11,000 to Vikas. Which document is to be prepared by Vikas?

(a) Invoice
(b) Debit note
(c) Credit note
(d) Credit voucher

13 A — 1

Assertion (A): Net profits are deflated when Secret Reserves are created.
Reason (R): Providing excessive depreciation on fixed assets will decrease Net Profits.

Which 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) Both (A)and (R) are false.

Or

13 B — 1

Assertion (A): Creation of provision is necessary as per GAAP.
Reason (R): A provision is an appropriation of profit.

Which 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) Both (A)and (R) are false.

14 A — 1

From the following Ledger, identify the correct Journal Entry

Dr. Interest on Investment A/c Cr.

Particulars		₹	Particulars	₹
			By Cash A/c	xxxx
			By Accrued Interest A/c	xxxx
		xxxx		xxxx

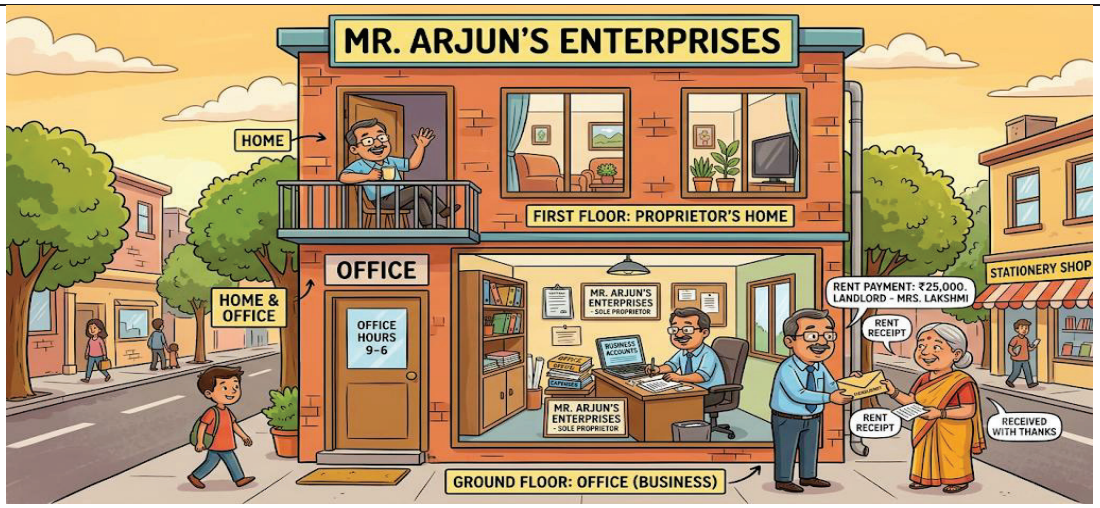
Options:

(a)

Cash A/c	...Dr.	xxxx	
Accrued interest A/c	...Dr.	xxxx	
To Interest on investment A/c			xxxx

	(b) Cash A/c ...Dr. xxxx To Interest received A/c xxxx (c) Accrued interest A/c ...Dr. xxxx To Interest received A/c xxxx (d) Interest received A/c ...Dr. xxxx To Cash A/c xxxx To Accrued interest A/c xxxx	
	Or	
14 B	Which of the following is the correct sequence for recording a cash sale? (a) Cash Memo → Cash Book → Ledger → Trial Balance (b) Cash Memo → Ledger → Cash Book → Trial Balance (c) Cash Book → Cash Memo → Ledger → Trial Balance (d) Cash Memo → Trial Balance → Cash Book → Ledger	1
15 A	Which of the following is/are not 'Errors of Principle'? 1. Purchase of furniture ₹ 15,000 was debited to Purchases a/c 2. Rent paid to Landlord ₹ 5,000 was posted to his personal a/c 3. Repair expenses ₹ 10,000 spent on overhauling of a second-hand machinery purchased was debited to machinery a/c 4. ₹ 10,000 received from Amit was credited to Sumit's a/c Choose the correct option from the following: (a) 4 only (b) 2 and 3 (c) 3 and 4 (d) 2 and 4	1
	Or	
15 B	Which of the following are not 'Error of Commission'? 1. Goods purchased from Rohan for ₹ 15,000 on credit was recorded in purchase book as ₹ 5,000 2. Received ₹ 1,000 from a debtor Rajat whose a/c was written off as bad previously was credited to his a/c as ₹ 100 3. Goods of Selling Price ₹ 1,000 (Costing ₹ 800) were returned by customer and were taken in stock but not recorded in the books of accounts. 4. Cartage paid ₹ 1,000 on newly purchased furniture was debited to cartage a/c Choose the correct option from the following: (a) 1 and 2 (b) 3 and 4 (c) 2 and 3 (d) 1 and 4	1
	From the following Case study answer the 16th Question (Both options are related to this case study) Mr. Srinivas started business for buying and selling of stationery with ₹ 5,00,000 as initial investment, of which he paid ₹ 1,00,000 for furniture and ₹ 2,00,000 for buying stationery items. He employed a sales person and a clerk. At the end of the month, he paid ₹ 5,000 as their salaries. Out of the stationery bought, he sold some stationery for ₹ 1,50,000 for cash and some other stationery for ₹ 1,00,000 on credit basis to Rahul. Subsequently he bought stationery items of ₹ 1,50,000 from Rounav. In the first week of the next month there was a fire accident and he lost ₹ 30,000 worth of stationery. A part of the furniture which cost ₹ 40,000 was sold for ₹ 45,000.	

16 A	From the above case study calculate the amount of the following 1. Fixed assets 2. Purchases 3. Name of Creditor and the amount payable	3
	Or	
16 B	From the above case study calculate the amount of the following 1. Gain 2. Name of Debtor and the amount receivable 3. Expenses (excluding purchases) and Losses	3
17 A	On 30th June 2026, the Bank column of the Cash book of Shri Mahavir Prasad had a credit balance of ₹ 10,000, whereas his Pass Book is having a different balance. The accountant is worried and desirous of matching the balances of the two books. On comparing the two books, he noticed the following discrepancies: 1. Mr. Prasad paid into bank three cheques amounting to ₹ 6,000 on 24th June 2026, out of which it was found that ₹ 3,200 have been credited in the Pass book on 5th July 2026. 2. There is a debit of ₹ 100 in respect of bank charges and a credit of ₹ 460 for dividend on securities in the pass book only. Prepare a Bank Reconciliation Statement as on 30th June 2026	3
	Or	
17 B	On 31st March 2026, the bank statement of Mr. Raghav showed a balance of ₹ 25,000 Credit, which is not matching with the bank balance shown by the cash book. On comparing the two books, following discrepancies were noticed: 1. Out of total cheques amounting to ₹ 16,000 deposited, cheques amounting to ₹ 9,000 were credited in the month of March, cheques amounting to ₹ 3,000 were credited in April and rest of the cheques have remained unrealized. 2. He also noticed that ₹ 1,000 was wrongly credited in the bank statement. Prepare a Bank Reconciliation Statement as on 31st March 2026	3
18	Prepare '**Accounting Equation'** from the following transactions in the books of Riya A. The following balances appeared in the books of Riya i. Cash ₹ 1,00,000 ii. Goods ₹ 5,00,000 iii. Machine ₹ 2,00,000 iv. Loan from SBI ₹ 3,00,000 B. Sold goods to Hiten on credit costing ₹ 80,000 at a profit of 20% on 'Selling price' C. Paid ₹ 50,000 to SBI against Loan (Principal amount of loan) and ₹ 10,000 for interest on the loan from SBI	3
19	Prepare a Trial Balance from the following information provided by Anirudh traders 1. Capital ₹ 5,00,000 2. Plant and machinery ₹ 6,50,000 3. Furniture ₹ 1,40,000 4. Cash in hand ₹ 50,000 5. Bank overdraft ₹ 39,000 6. Purchases ₹ 11,15,000 7. Discount allowed ₹ 2,000 8. Sales ₹ 17,41,000 9. Customers ₹ 4,82,000 10. Suppliers ₹ 2,65,000 11. Return inwards ₹ 3,000 12. Rent ₹ 1,03,000	3

20	The following balances appear in the books of Sanraj and Sons as on 1st April, 2026: Machinery Account ₹ 5,00,000 Provision for Depreciation Account ₹ 2,25,000 On 1st July 2026, the above Machinery was sold at a loss of ₹ 20,000. Pass journal entries on July 1st, 2026 assuming that the accounts are closed on 31st March each year and depreciation was charged @10% p.a. by Fixed Instalment method.	3
21	 Identify and explain the two accounting assumptions/principles/concepts/conventions depicted in the above picture	4
22 A	The Trial Balance of Mr. Sahil did not agree and showing ₹ 9,000 excess credit. The following errors were discovered: 1. Credit sales of goods to Rajesh ₹ 3,600 was passed through Purchase Book 2. Parul was paid cash ₹ 2,800 but Paras was debited by ₹ 3,800 3. Purchase return to Reena ₹ 10,000 was not posted to her a/c Pass necessary 'Rectification' entries and prepare 'Suspense' a/c	4
	Or	
22 B	The Trial Balance of Mr. Tushar did not agree and showing ₹ 7,300 excess credit. The following errors were discovered: 1. Goods returned to Hari ₹ 600 has been passed through 'Return Inward' Book 2. The total of Sales Book ₹ 89,000 was posted to Sales a/c as ₹ 99,000 3. Received ₹ 3,000 from Mohit was credited to Sohit by ₹ 300 Pass necessary 'Rectification' entries and prepare 'Suspense' a/c	4
23	Pass necessary Journal entries in the books of Mohan, Jaipur (Rajasthan) assuming CGST & SGST @9% each and IGST @18%. 1. Sold goods to Ravi (Jaipur) list price ₹80,000 less 25% trade discount. 2. Purchased goods from Anil (Delhi) list price ₹60,000 less 20% trade discount. 3. Placed an order with R.K. Traders for goods worth ₹50,000 at 15% trade discount. 4. Received ₹8,000 dividend directly credited by bank. 5. Paid telephone expenses ₹8,260 (including GST) by cheque. 6. Paid LIC premium of proprietor ₹15,000.	6
24	On April 1, 2024 AB Enterprises has a balance of machinery ₹ 8,00,000 in its books of account. On 1st July,2024, $\frac{1}{3}$ rd part of the machinery which was purchased on Oct. 1,2022 for ₹ 6,00,000 having obsolete and was sold for ₹ 1,20,000. On 1st October, 2025, new machinery was purchased for ₹ 1,26,000. Prepare 'Machinery' a/c for the accounting year 2024-25 and 2025-26 assuming that the accounts are closed on 31st March each year and depreciation was charged @10% p.a. by Written Down Value method.	6

25 A	M/s Royal traders started business on 1st April, 2026. From the following transactions, prepare Cash book, Sales Book, Sales a/c and Sunil & Sons a/c (Journal Proper is not required) 1st April Balance of Cash ₹ 30,000 and Bank (Cr.) ₹ 12,000 2nd April Sales for Cash ₹ 40,000 6th April Sold Goods to Sunil & Sons for ₹ 3,200 on credit 9th April Received cash from Sunil & Sons after a discount of ₹ 100 in full settlement 10th April Deposited into Bank, balance of cash in excess of ₹ 25,000	6
	Or	
25 B	M/s Imperial traders stated business on 1st April, 2026. From the following transactions, prepare Cash Book, Purchase Book, Purchase a/c and Shalini's a/c (Journal Proper is not required) 1st April Balance of Cash ₹ 30,000 and Bank (Cr.) ₹ 12,000 2nd April Purchased goods on credit from Shalini ₹ 16,000 6th April Purchased goods for cash ₹ 10,000 9th April Paid to Shalini after receiving a cash discount of 2% in full settlement 10th April Deposited in Bank, balance of cash in excess of ₹ 1,500	6
	Part - B	
26	Which of the following is NOT a 'Revenue Receipt'? (a) Collection from debtors (b) Commission and fees received for services rendered (c) Amount received by the way of Loan (d) Cash sales	1
27	Read the following statements: Assertion (A) and Reason (R). Choose the correct alternative among those given below: Assertion (A): Profit and Loss Account is prepared according to accrual basis of accounting. Reason (R): Profit and Loss Account is prepared at a particular date and not for a particular period. Alternatives: (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 and 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
28	Read the following statements and choose the correct alternative among those given below: Statement 1: Financial Statements provide valuable accounting information to a number of users. Statement 2: Financial Statements give information about financial performance and financial position of the business. Alternatives: (a) Both the Statements are true. (b) Both the Statements are false. (c) Statement 1 is true and Statement 2 is false. (d) Statement 2 is true and Statement 1 is false.	1
29	Differentiate between Double entry system and Single entry system on the basis of 'Reliability'	1
30 A	Which of the following is not a feature of Single entry system (a) Lacks uniformity (b) Suitable for large business enterprises (c) Cash book is maintained (d) Only personal accounts are maintained	1

Or

30 B (1)

Read the following statements: Assertion (A) and Reason (R). Choose the correct alternative among those given below:

Assertion (A): Single Entry System is an incomplete system of accounting because all financial transactions are not recorded according to the principles of the Double Entry System.

Reason (R): Under the Single Entry System, only personal accounts are generally maintained, while real and nominal accounts are either partially maintained or not maintained at all.

Alternatives:

(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 and 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.

31 (3)

From the following extract of Trial Balance as on 31st March, 2026, pass necessary adjustment entry, show the relevant extract from the Profit and Loss Account and the Balance Sheet.

Particulars	Dr. (₹)	Cr. (₹)
10% Fixed Deposits {Placed on 1st January, 2026}	20,000	
Interest on Fixed Deposits		300

32 (4)

Calculate Closing Stock from the following details:

Particulars	Amt. (₹)	Particulars	Amt. (₹)
Opening Stock	20,000	Cash Sales	60,000
Purchases	60,000	Credit Sales	40,000
Wages	5,000		
Carriage inwards	5,000		
Carriage outwards	3,500		
Depreciation on machinery	10,000		

Rate of Gross Profit on Cost is $33\frac{1}{3}\%$.

33 (6)

On 1st April, 2025, Vidit started a business with ₹ 40,000 as his capital. On 31st March, 2026, his position was as follows:

Particulars	Amt. (₹)
Creditors	30,000
Bills Payable	10,000
Bank	10,000
Debtors	50,000
Stock	40,000
Plant	68,000
Furniture	12,000

During the year 2025-26, Vidit withdrew ₹ 24,000. On 1st October, 2025, he introduced further capital amounting to ₹ 30,000. You are required to ascertain Profit or Loss made by him during the year 2025-26.

Adjustments:

(a) Plant is to be depreciated at 10%.

(b) A Provision of 5% is to be made against debtors.

Also prepare the Statement of Affairs as on 31st March, 2026.

34 A

From the following Trial Balance of Vrishti, prepare Trading Account and Profit and Loss Account for the year ending 31st March, 2026.

Particulars	Dr. (₹)	Cr. (₹)
Capital		72,000
Drawings	8,400	

	Printing Charges	1,000		
	Machinery	20,000		
	Purchases	55,000		
	Sales		96,000	
	Salaries	9,300		
	Advertising	2,500		
	Bills Receivable	1,900		
	Bills Payable		2,700	
	Stock {01.04.2025)	24,000		
	Bank Loan		7,300	
	Rent	3,000		
	Building	25,000		
	Wages (Including Wages of ₹ 2,000 paid for installation of machinery)	6,500		
	Sundry Debtors	30,000		
	Sundry Creditors		12,000	
	Insurance Premium	1,400		
	Furniture	2,000		
		1,90,000	**1,90,000**	
	Adjustments: (i) Value of Closing Stock ₹ 27,500 on 31st March, 2026. (ii) Salaries outstanding ₹ 1,500. (iii) Insurance Premium Prepaid ₹ 300. (iv) Depreciate Machinery to 90% and Building by 2%. (v) Write off further Bad Debts amounting to ₹ 1,500.			6
	Or			
34 B	Following is the Trial Balance of Anshuman as on 31st March, 2026:			
	Particulars	**Dr. (₹)**	**Cr. (₹)**	
	Wages	7,000		
	Capital		40,000	
	Building	30,000		
	Furniture	5,000		
	Computer	4,000		
	Returns Inward and Outward	2,000	1,000	
	Opening Stock	10,000		
	Purchases and Sales	36,000	60,000	
	Bad Debts	400		
	Carriage	2,000		
	Repairs	1,500		
	10% Bank Loan		6,000	
	Interest on Bank Loan	300		
	Commission		2,300	
	Insurance and Taxes	2,400		
	Computer Expenses	2,600		
	Salaries	6,600		
	Cash in Hand	1,800		
	Debtors and Creditors	12,200	14,500	
		1,23,800	**1,23,800**	
	You are required to Prepare the Profit and Loss account and Balance Sheet for the year ending 31st March, 2026 taking into account the following adjustments: (i) Closing stock on 31st March, 2026 was valued at ₹ 14,200. (ii) Salaries have been paid for 11 months. (iii) Commission included ₹ 200 being commission received in advance. (iv) Write off ₹ 200 as further bad debts and maintain a bad debts provision at 5% on debtors. (v) Depreciate Furniture by 5% and Computer to 90%. (vi) Gross Profit ₹ 18,200 ==========			6

<table>
<tr><td></td><td>Sample Paper – 2026-27
Accountancy
Class – XI
Solution & Marking Scheme</td><td>Value points</td><td>Marks</td></tr>
<tr><td>Q.No.</td><td>PART – A</td><td></td><td></td></tr>
<tr><td>1</td><td>(b) Convention of Full Disclosure</td><td>1</td><td>1</td></tr>
<tr><td>2</td><td>(d) Credited, Liability</td><td>1</td><td>1</td></tr>
<tr><td>3</td><td>(d) Records transactions in money terms</td><td>1</td><td>1</td></tr>
<tr><td>4 A</td><td>(a) Comparability</td><td>1</td><td>1</td></tr>
<tr><td></td><td>Or</td><td></td><td></td></tr>
<tr><td>4 B</td><td>(b) Reliability and comparability</td><td>1</td><td>1</td></tr>
<tr><td>5 A</td><td>(a) ₹ 11,25,000</td><td>1</td><td>1</td></tr>
<tr><td></td><td>Or</td><td></td><td></td></tr>
<tr><td>5 B</td><td>(b) ₹ 12,50,000</td><td>1</td><td>1</td></tr>
<tr><td>6</td><td>(d) To ascertain the arithmetic accuracy of the accounts</td><td>1</td><td>1</td></tr>
<tr><td>7</td><td>(b) ₹70,560</td><td>1</td><td>1</td></tr>
<tr><td>8</td><td>(d) Cost of goods purchased.</td><td>1</td><td>1</td></tr>
<tr><td>9</td><td>(d) Credit the increase in capital</td><td>1</td><td>1</td></tr>
<tr><td>10</td><td>(a) A customer’s account in the bank’s books</td><td>1</td><td>1</td></tr>
<tr><td>11</td><td>(a) Cash Book</td><td>1</td><td>1</td></tr>
<tr><td>12 A</td><td>(a) 1Z, 2W, 3X, 4Y</td><td>1</td><td>1</td></tr>
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<tr><td>12 B</td><td>(c) Credit note</td><td>1</td><td>1</td></tr>
<tr><td>13 A</td><td>(a) Both (A) and (R) are true and (R) is the correct explanation of (A)</td><td>1</td><td>1</td></tr>
<tr><td></td><td>Or</td><td></td><td></td></tr>
<tr><td>13 B</td><td>(c) (A) is true, but (R) is false.</td><td>1</td><td>1</td></tr>
<tr><td>14 A</td><td>(a)
<table>
<tr><td>Cash A/c</td><td>...Dr.</td><td>xxxx</td><td></td></tr>
<tr><td>Accrued interest A/c</td><td>...Dr.</td><td>xxxx</td><td></td></tr>
<tr><td>To Interest on investment A/c</td><td></td><td></td><td>xxxx</td></tr>
</table></td><td>1</td><td>1</td></tr>
<tr><td></td><td>Or</td><td></td><td></td></tr>
<tr><td>14 B</td><td>(a) Cash Memo → Cash Book → Ledger → Trial Balance</td><td>1</td><td>1</td></tr>
<tr><td>15 A</td><td>(c) 3 and 4</td><td>1</td><td>1</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>15 B</td><td>(b) 3 and 4</td><td>1</td><td>1</td></tr>
</table>

16 A

1. Fixed assets = ₹ 1,00,000 (Furniture) — 1
2. Purchases = ₹ 2,00,000 + ₹ 1,50,000 = ₹ 3,50,000 — 1
3. Raunav is the creditor and the amount payable is ₹ 1,50,000 (½ + ½ = 1) — 1

3

Or

16 B

1. Gain = ₹ 45,000 – ₹ 40,000 = ₹ 5,000 — 1
2. Rahul is the debtor and the amount receivable is ₹ 1,00,000 (½ + ½ = 1) — 1
3. Expenses and Losses = ₹ 5,000 + ₹ 30,000 = ₹ 35,000 (½ + ½ = 1) — 1

3

17 A

Books of Sh. Mahavir Prasad

Bank Reconciliation Statement as on June 30, 2026

Particulars	Plus items (₹)	Minus items (₹)	Marks
Balance as per Cash book (Credit)		10,000	½
Cheques deposited in bank but not yet cleared		3,200	1
Bank charges charged by bank		100	½
Interest credited by bank	460		½
Debit balance as per Pass Book	12,840		½
	13,300	**13,300**	

3

Or

17 B

Books of Raghav

Bank Reconciliation Statement as on March. 31, 2026

Particulars	Plus items (₹)	Minus items (₹)	Marks
Credit balance as per Bank statement	25,000		½
Cheques deposited but not yet cleared	7,000		1
Wrong credit by bank		1,000	1
Debit balance as per Cash Book		31,000	½
	32,000	**32,000**	

3

18

Accounting equation
Books of Riya

S.No	Transactions	Assets ₹ Cash	+ Stock	+ Machine	+ Debtor	= Liabilities ₹ Loan (SBI)	+ Capital ₹ Capital	
1.	Balances brought forward	1,00,000	5,00,000	2,00,000		3,00,000	5,00,000	½
2.	Sold goods to Hiten costing ₹ 80,000 at profit of 20% on selling price		(80,000)		1,00,000		20,000	1
	New Equation	1,00,000	4,20,000	2,00,000	1,00,000	= 3,00,000	5,20,000	
3.	Paid instalment of Loan ₹ 50,000 and Interest on loan ₹10,000	(60,000)				(50,000)	(10,000)	1
	New Equation	40,000	4,20,000	2,00,000	1,00,000	= 2,50,000	5,10,000	½
	Total	**7,60,000**				**=**	**7,60,000**	

3

Working Note:

Profit = $\frac{20}{80}$ x Cost = $\frac{20}{80}$ x 80,000 = 20,000

Sales = Cost + Profit = 80,000 + 20,000 = 1,00,000

19

Books of Anirudh
Trial Balance

Account Head	Debit Balance ₹	Credit Balance ₹
Capital		5,00,000
Plant and machinery	6,50,000	
Furniture	1,40,000	
Cash in hand	50,000	
Purchases	11,15,000	
Discount allowed	2,000	
Bank overdraft		39,000
Sales		17,41,000
Customers	4,82,000	
Suppliers		2,65,000
Return inwards	3,000	
Rent	1,03,000	
	25,45,000	**25,45,000**

1 mark for every 4 correct items — 3

20

Books of Sanraj Sons
Journal

2026	Particulars		L.F.	Debit ₹	Credit ₹	
July 1	Depreciation a/c	Dr		12,500		1
	To Provision for Depreciation A/c				12,500	
July 1	Provision for Depreciation A/c	Dr		2,37,500		½
	To Machinery A/c				2,37,500	
July 1	Bank a/c	Dr		2,42,500		1
	To Machinery A/c				2,42,500	
July 1	Loss on sale of Machinery A/c	Dr		20,000		½
	To Machinery A/c				20,00	

Or (Alternate answer)

July 1	Depreciation A/c	Dr		12,500	
	To Provision for Depreciation A/c				12,500
July 1	Bank A/c	Dr		2,42,500	
	Provision for Depreciation A/c	Dr		2,37,500	
	Loss on sale of Machinery A/c	Dr		20,000	
	To Machinery A/c				5,00,000

3

21

1. Verifiability: Rent receipt given by the landlord — 2
2. Business entity: Part of rent paid will be treated as business expense and part will be treated as drawings — 2

1 mark for identification and 1 mark for explanation each part — 4

22 A

Books of Sahil
Rectifying Journal

Date	Particulars		LF	Debit amount ₹	Credit amount ₹	
1	Rajesh	Dr		7,200		
	To Purchases a/c				3,600	1
	To Sales a/c				3,600	
	(Credit sale of goods to Rajesh wrongly passed through Purchases book)					
2	Parul	Dr		2,800		
	Suspense a/c	Dr		1,000		1

4

		To Paras (Cash paid to Parul but Paras was debited with wrong amount)			3,800		
	3	Reena Dr To Suspense a/c (Purchase return to Reena was not posted to her a/c)		10,000	10,000	1	

Suspense A/c

Particulars	Amount ₹	Particulars	Amount ₹	
Difference in Trial Balance	9,000	Reena	10,000	1
Paras	1,000			
	10,000		**10,000**	

Or

22 B

Books of Tushar

Rectifying Journal

Date	Particulars	LF	Debit amount ₹	Credit amount ₹		
1	Hari Dr To Purchase return a/c To Sales return a/c (Goods returned by Hari was passed through return outward book)		1,200	 600 600	1	
2	Sales a/c Dr To Suspense a/c (Posting of excess amount in Sales a/c)		10,000	10,000	1	4
3	Sohit Dr Suspense a/c Dr To Mohit (Amount received from Mohit was credited to Sohit by wrong amount)		300 2,700	 3,000	1	

Suspense A/c

Particulars	Amount ₹	Particulars	Amount ₹	
Difference in Trial Balance	7,300	Sales a/c	10,000	1
Mohit	2,700			
	10,000		**10,000**	

23

Books of Mohan (Jaipur)

Journal

Date	Particulars	LF	Debit amount ₹	Credit amount ₹		
1	Ravi Dr To Sales a/c To Output CGST a/c To Output SGST a/c		70,800	 60,000 5,400 5,400	1	
2	Purchase a/c Dr Input IGST a/c Dr To Anil		48,000 8,640	 56,640	1	
3	No Entry				1	
4	Bank a/c Dr To Dividend received a/c		8,000	 8,000	1	
5	Telephone expenses a/c Dr		7,000*			

		Input CGST a/c Dr Input SGST a/c Dr To Bank a/c		630 630	 8,260	1	6
	6	Drawings a/c Dr To Bank/Cash a/c		15,000	 15,000	1	

Working Note

Telephone bill amount without GST = 8,260 x $\frac{100}{118}$ = 7,000

24

Books of AB Enterprises

Machinery A/c

Date	Particulars	Amount ₹	Date	Particulars	Amount ₹
1/4/24	To Balance b/d (½)	8,00,000	1/7/24	By Bank A/c (½) Depreciation (½) Loss on sale of Machinery(½)	1,20,000 4,275 46,725
			31/3/25	By Depreciation A/c (½) By Balance c/d (½)	62,900 5,66,100
		8,00,000			**8,00,000**
1/4/25 1/10/25	To Balance b/d To Bank M3 (½)	5,66,100 1,26,000	31/3/26	By Depreciation (1) (56,610 + 6,300) By Balance c/d (½)	62,910 6,29,190
		6,92,100			**6,92,100**

3

2

Working notes:

	₹
Original cost of 1/3rd part of Machinery (600,000*1/3)	200,000
Less: depreciation for 2022-23 and 2023-24 (10,000+19000)	29,000
Book Value As on 1.4.24	**171,000**
Less: Depr. Till July 1,2024 (171,000 x 10% x 3/12)	4,275
Book Value As on date of sale	**1, 66,725**
Less: Sale Proceeds of Machinery	1, 20,000
Loss on sale of Machinery	**46,725**

1

6

25 A

Books of Royal Enterprises

Cash Book

Date	Particulars	LF	Cash ₹	Bank ₹	Date	Particulars	LF	Cash ₹	Bank ₹
1/4/26	To Balance b/d		30,000		1/4/26	By Balance b/d			12,000
2/4/26	To Sales a/c		40,000		1/4/26	By Bank a/c	C	48,100	
9/4/26	To Sunil & Sons		3,100		30/4/26	By Balance c/d		25,000	36,100
10/4/26	To Cash a/c	C		48,100					
			73,100	**48,100**				**73,100**	**48,100**

3

6

Sales Book

Date	Particulars	Invoice	LF	Details ₹	Amount ₹
6/4/26	Sunil & Sons			3,200	3,200
30/4/26	Sales a/c Cr				**3,200**

1

Sales A/c

Date	Particulars	Amount ₹	Date	Particulars	Amount ₹
30/4/26	To Balance c/d	43,200	2/4/26	By Cash a/c	40,000
			30/4/26	By Sundries as per Sales Book	3,200
		43,200			**43,200**

1

Sunil and Sons' A/c

Date	Particulars	Amount ₹	Date	Particulars	Amount ₹
6/4/26	To Sales a/c	3,200	9/4/26	By Cash a/c	3,100
				By Discount allowed a/c	100
		3,200			**3,200**

1

Or

25 B

Books of Imperial Enterprises

Cash Book

Date	Particulars	LF	Cash ₹	Bank ₹	Date	Particulars	LF	Cash ₹	Bank ₹
1/4/26	To Balance b/d		30,000		1/4/26	By Balance b/d			12,000
10/4/26	To Cash a/c	C		2,820	6/4/26	By Purchases a/c		10,000	
30/4/26	To Balance c/d			9,180	9/4/26	By Shalini		15,680	
					10/4/26	By Bank	C	2,820	
					30/4/26	By Balance c/d		1,500	
			30,000	**12,000**				**30,000**	**12,000**

3

Purchase Book

Date	Particulars	Invoice	LF	Details ₹	Amount ₹
2/4/26	Shalini Enterprises			16,000	16,000
30/4/26	Purchase a/c Dr				**16,000**

1

Purchases A/c

Date	Particulars	Amount ₹	Date	Particulars	Amount ₹
6/4/26	To Cash a/c	10,000	30/4/26	By Balance c/d	26,000
30/4/26	To Sundries as per Purchase Book	16,000			
		26,000			**26,000**

Shalini Enterprises A/c

Date	Particulars	Amount ₹	Date	Particulars	Amount ₹
10/4/26	To Cash a/c	15,680	2/4/26	By Purchases a/c	16,000
10/4/26	To Discount received a/c	320			
		16,000			**16,000**

1 1 6

PART – B

26	(c) Amount received by the way of Loan	1	1
27	(c) Assertion (A) is True but Reason (R) is False	1	1
28	(a) Both the Statements are true.	1	1
29	Difference between Double Entry System and Single Entry System	1	1

Basis	Double Entry System	Single Entry System
Reliability	This system is more reliable as books are maintained on the basis of scientific principles.	This system is less reliable as there are no fixed set of principles for maintaining the books of accounts.

30 A	(b) Suitable for large business enterprises	1	1
	Or		
30 B	(a) Both Assertion (A) and Reason (R) are True and Reason (R) is the correct explanation of Assertion (A).	1	1

31 In the given case, total interest due on 10% Fixed Deposits for 3 months only (Jan, Feb and March 2026)
Interest due = ₹ 20,000 x 3/12 x 10/100 = ₹ 500.
However, only ₹ 300 has been received during the year. Its means, interest of ₹ 200 (= ₹ 500 - ₹ 300) is accrued.

Adjustment entry

Particulars		LF	Debit ₹	Credit ₹
Accrued interest a/c	Dr		200	
To Interest on investment a/c				200
(Interest accrued on investment)				

1 3

Dr. PROFIT AND LOSS ACCOUNT Cr.

Particulars	(₹)	Particulars		(₹)
		By Interest	300	
		Add: Accrued Interest	200	500

1

BALANCE SHEET

Liabilities	(₹)	Assets	(₹)
		10% Fixed Deposits	20,000
		Accrued Interest	200

1

32

Total Sales = Cash Sales + Credit Sales
= ₹ 60,000 + ₹ 40,000 = ₹ 1,00,000 (½)
Let Cost of Goods Sold = x
It means. Gross Profit = $33\frac{1}{3}$% of x or $\frac{1}{3}$x
We know:
Cost of Goods Sold = Total Sales - Gross Profit (½)
i.e. x = ₹ 1,00,000 - $\frac{1}{3}$x
$\frac{4}{3}$ x = 1,00,000
x or Cost of Goods Sold = ₹ 75,000 (½)
Gross Profit = Total Sales - Cost of Goods Sold (½)
= ₹ 1,00,000 - ₹ 75,000 = ₹ 25,000 (½)
Cost of Goods Sold = Opening Stock + Purchases + Wages + Carriage In. - Closing Stock (½)
₹ 75,000 = ₹ 20,000 + ₹ 60,000 + ₹5,000 + ₹ 5,000 - Closing Stock
Closing Stock = ₹ 20,000 + ₹ 60,000 + ₹ 5,000 + ₹ 5,000 - ₹ 75,000 = ₹ 15,000. (1)

4

33

STATEMENT OF AFFAIRS (Before Adjustments)
as at 31st March, 2026

Liabilities	Amt. (₹)	Assets	Amt. (₹)
Creditors	30,000	Bank	10,000
Bills Payable	10,000	Debtors	50,000
Vidit's Capital {Balancing Figure}	1,40,000	Stock	40,000
		Plant	68,000
		Furniture	12,000
	1,80,000		**1,80,000**

2½

STATEMENT OF PROFIT AND LOSS
for the year ended 31st March, 2026

Particulars	Amt. (₹)
Capital as on 31st March, 2026 {i.e. Closing Capital)	1,40,000
Less: Capital introduced during the year (i.e. Additional Capital)	30,000
	1,10,000
Add: Drawings during the year	24,000
Adjusted Capital at the end	1,34,000
Less: Capital as on 1st April, 2025 {i.e. Opening Capital)	40,000
Profit before Adjustment	94,000
Less: Provision for Doubtful Debts	2,500
Less: Depreciation	6,800
Net Profit	**84,700**

3½

STATEMENT OF AFFAIRS (Adjusted)
as at 31st March, 2026

Liabilities		Amt. (₹)	Assets		Amt. (₹)
Creditors		30,000	Bank		10,000
Bills Payable		10,000	Debtors	50,000	
Vidit's Capital {Opening)	40,000		Less: Prov. for Doubtful Debts	2,500	47,500
Add: Additional Capital	30,000		Stock		40,000
Add: Net Profit	84,700		Plant	68,000	
	1,54,700		Less: Depreciation	6,800	61,200
Less: Drawings	24,000	1,30,700	Furniture		12,000
		1,70,700			**1,70,700**

Alternate solutions are also deemed to be correct and should be marked accordingly

6

34 A

Books of Vrishti

TRADING AND PROFIT AND LOSS ACCOUNT

Dr. **for the year ended 31st March, 2026** **Cr.**

Particulars		Amt. (₹)	Particulars	Amt. (₹)
To Opening Stock		24,000	By Sales	96,000
To Purchases		55,000	By Closing Stock	27,500
To Wages	6,500			
Less: Installation of Machinery	2,000	4,500		
To Gross Profit transferred to Profit and Loss A/c		40,000		
		1,23,500		**1,23,500**
To Printing Charges		1,000	By Gross Profit transferred from Trading A/c	40,000
To Salaries	9,300			
Add: Outstanding Salaries	1,500	10,800		
To Advertising		2,500		
To Rent		3,000		
To Insurance Premium	1,400			
Less: Prepaid Insurance	300	1,100		
To Depreciation:				
Machinery	2,200			
Building	500	2,700		
To Bad Debts		1,500		
To Net Profit Transferred to Capital A/c		17,400		
		40,000		**40,000**

(2½)

(3½)

6

Or

34 B

Books of Anshuman

PROFIT AND LOSS ACCOUNT

Dr. **for the year ended 31st March, 2026** **Cr.**

Particulars		Amt. (₹)	Particulars		Amt. (₹)
To Repairs		1,500	By Gross Profit transferred from Trading A/c		18,200
To Interest on Bank Loan	300		By Commission	2,300	
Add: Outstanding Interest	300	600	Less: Advance Comm.	200	2,100
To Insurance and Taxes		2,400			
To Computer Expenses		2,600			
To Salaries	6,600				
Add: Outstanding Salaries	600	7,200			
To Depreciation on:					
Furniture	250				
Computer	400	650			
To Bad Debts	400				
Add: Further Bad Debts	200				
Add: Prov. for Doubtful Debts	600	1,200			
To Net Profit Transferred to Capital A/c		4,150			
		20,300			**20,300**

(3½)

BALANCE SHEET
as at 31st March, 2026

Liabilities		Amt. (₹)	Assets		Amt. (₹)
Capital	40,000		Building		30,000
Add: Net Profit	4,150	44,150	Furniture	5,000	
Bank Loan	6,000		Less: Depreciation	250	4,750
Add: Outstanding Interest	300	6,300	Computer	4,000	
Creditors		14,500	Less: Depreciation	400	3,600
Outstanding Salaries		600	Debtors	12,200	
Advance Commission		200	Less: Further Bad Debts	200	
				12,000	
			Less: Prov. for Doubtful Debts	600	11,400
			Closing Stock		14,200
			Cash in Hand		1,800
		65,750			**65,750**

==========

(2½)

6

	CLASS XI **BUSINESSSTUDIES(054)** **SAMPLE QUESTION PAPER (2026-27)** **MM – 80** **TIME: 3 HOURS**	
	General Instructions : **1. This question paper contains 34 questions.** **2. Marks are indicated against each question.** **3. Answers should be brief and to the point.** **4. Answers to the questions carrying 3 marks may be from 50 to 75 words.** **5. Answers to the questions carrying 4 marks may be about 150 words.** **6. Answers to the questions carrying 6 marks may be about 200 words.** **7. Attempt all parts of the question together.**	
1.	Zenith Electronics Ltd., a leading manufacturer of premium air conditioners, operates its factory at full capacity during the winter months to prepare for the summer demand. Due to limited storage space and high inventory costs, it sells the air conditioners in bulk to an intermediary, Vedic Distribution House. The intermediary stores the products in regional warehouses and supplies to local appliance stores during the summer season as demand rises. Identify the combination of utilities created by Vedic Distribution House in the above case. A) Place Utility, Time Utility B) Time Utility, Form Utility C) Form Utility, Place Utility D) Time Utility, Knowledge Utility	1
2.	Raghav, a skilled graphic designer, wanted to start a business without sharing ownership or decision-making authority with anyone else. At the same time, he wanted his business to have separate legal identity and the benefit of limited liability. He incorporated the business under the Companies Act,2013 as its sole member and nominated his sister to take over the membership in the event of his death or incapacity. Raghav alone manages the affairs of the business and takes all strategic decisions.Identify the form of business organisation established by Raghav.	1

	A) Sole Proprietorship B) Limited liability partnership C) Private Company D) One Person Company	
3.	Aakash Textiles Ltd. is an established garment export house. The company wants to raise ₹15 crores to modernize its weaving machinery. The promoters of the company want to raise capital from the public but are strictly against sharing their management control with the new investors. At the same time, the finance department does not want to borrow as they want to avoid creating a legal charge on the company's assets. They decide to issue a type of security that pays a fixed return to investors, without granting them voting rights. Name the source of finance which Aakash Textiles Ltd. has chosen to raise the required funds. A) Equity Shares B) Public Deposits C) Preference Shares D) Retained Earnings	1
4.	Choose the correct statement with respect to cooperative society: 1. The liability of members is limited to the extent of the amount contributed by them as capital. 2. In a cooperative society, voting rights depend on the capital contributed by members. 3. Change in membership does not affect the operations of the society. 4. Formation of a cooperative society is governed by the provisions of Cooperative Societies Act ,1910. Choose the correct option: A) 1,3 and 4 B) Only 3 C) 2 and 4 D) 1 and 3	1

5.	'Brew & Bake' is a renowned European café chain known not only for its signature coffee blends but also for its standardised store layout, employee training, operating procedures, pricing policy, and customer service standards. Sohan, an entrepreneur in Mumbai, entered into an agreement with the company to establish its outlets in India. Under the agreement, he is permitted to use the company's brand name and is required to operate the café strictly according to the business format and quality standards prescribed by café chain 'Brew & Bake'. In return, he pays a regular royalty. The agreement between Sohan and 'Brew & Bake' illustrates which way of operating the business internationally. A) Merchandise exports and imports B) Service exports and imports C) Licensing and Franchising D) Foreign Investments	1
6.	 Identify the correct statement regarding the form of public sector enterprise depicted in the image. A) It is established under a special Act of Parliament which defines its powers, functions, and rules of operation. B) Its employees are government servants, and its funding comes directly from the government treasury through annual budget allocations. C) It enjoys complete operational autonomy and is free from any direct ministerial control or political interference. D) It is registered under the Indian Companies Act, and the government holds at least 51% of its paid-up share capital.	1

<table>
<tr><td>7.</td><td>Match the following and choose the correct option.
<table>
<tr><th>COLUMN 1</th><th>COLUMN 2</th></tr>
<tr><td>I Savings account</td><td>A. Amount is withdrawn regularly, especially for business</td></tr>
<tr><td>II Current account</td><td>B. Additional interest of 0.50% is offered to senior citizens on deposits placed for a year and above</td></tr>
<tr><td>III Multiple option deposits account</td><td>C. Two free cheque books will be issued each year</td></tr>
<tr><td>IV Fixed deposits account</td><td>D. A kind of deposit scheme introduced by different banks, where excess amount in the savings bank account is transferred to fixed deposit account</td></tr>
</table>
A) I.-D, II.-C, III- A, IV-B
B) I.-C, II.-B, III- A, IV-D
C) I-C, II-A, III- D, IV-B
D) I.-C, II.-D, III- B, IV-A</td><td>1</td></tr>
<tr><td>8.</td><td>Statement 1: MSMED Act, 2006 covers medium scale enterprises and service related enterprises also.
Statement 2: MSME’s are complementary to large scale industry as ancillary units and form an integral part of the value chain for building a conducive environment for indigenous skills, grass root innovation and entrepreneurship development.
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</td><td>1</td></tr>
</table>

9.	Rohan wants to make an online payment directly from his bank account while purchasing raw materials for his business. Aarav, on the other hand, wants to buy a laptop online immediately and prefers to pay now but settle the amount with the bank at a later date. Identify e-banking services that are most appropriate for Rohan and Aarav, respectively. A) Net Banking for Rohan; Debit Card for Aarav B) Debit Card for Rohan; Credit Card for Aarav C) Credit Card for Rohan; Debit Card for Aarav D) Credit Card for Rohan; Net Banking for Aarav	1
10.	Read the following statements: Assertion and Reason. Choose one of the correct alternatives given below: Assertion(A): Debentures put a burden on the earnings of a company. Reason(R): Debentures are fixed charge instruments and the risk increases when the earnings of the company fluctuate. 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 and 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
11.	Aaradhya, a young entrepreneur, has designed a portable water purification device that uses a completely new filtration technology. Before launching the product in the market, she wants to obtain exclusive legal rights so that no other company can manufacture or sell the same invention without her permission. However, during scrutiny, the authorities found that her design was merely a minor modification of an existing technology with no additional technical advantage. As a result, the exclusive rights were not granted by the authorities. Identify the condition which has not been fulfilled due to which the exclusive rights were not granted to Aaradhya. A) The invention should be capable of industrial application. B) The invention should be new and involve an inventive step. It should not be obvious to a person skilled in that field. C) The invention should be commercially profitable. D) The invention should not have been disclosed to the public before filing the patent application.	1

12.	Rajat Tech Solutions, an agro-processing and packaging enterprise based in Punjab, recently expanded its operations by installing additional automated processing and packaging machinery. As a result, its investment in plant and machinery increased to ₹9 crore, while its annual turnover reached ₹45 crore during the current financial year. The management plans to register the enterprise under the government's Udyam Registration system. Based on the latest MSME classification criteria, under which category will Rajat Tech Solutions be classified A) Micro Enterprise B) Small Enterprise C) Medium Enterprise D) Large Enterprise	1
13.	Out of the following, select the incorrect statement about the Public Private Partnership Model. A) Contract with private party to design and build public facility B) Facility is financed and owned by the private sector C) Key driver is transfer of design and construction risk D) Suited to capital projects with small operating requirement	1
14	_____is a large establishment offering a variety of products, aimed at satisfying practically every customer's needs under one roof. A) Departmental Store B) Multiple Shops C) Mail order house D) Chain Stores	1
15	Farm Fresh Foods, a manufacturer of packaged spices in Kerala, sold a large consignment of its products to a supermarket chain in Delhi. The company's accountant explained that under the present GST system, the tax revenue from this transaction would accrue to the state where the goods are finally consumed rather than to the state where they were produced. Identify the key feature of GST highlighted in the case. A) GST is applicable only to the manufacture of goods B) GST is based on the principle of origin-based taxation C) GST is a direct tax collected from consumers D) GST is based on the principle of destination-based consumption tax	1

16	Statement I: Wholesale Trade is a business that is engaged in the sale of goods and services directly to the ultimate consumers. Statement II: Itinerant retailers are traders who do not have a fixed place of business to operate from. 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
17	Name the organization that was the direct predecessor to the World Trade Organization (WTO) established in 1995. A) International Monetary Fund (IMF) B) General Agreement on Tariffs and Trade (GATT) C) World Bank D) United Nations Conference on Trade and development	1
18	Aura Textiles Ltd., a garment manufacturer in New Delhi, planned to import premium cotton from an overseas supplier. After finalising the terms of purchase, the company sent a detailed order mentioning the specifications of the goods, quantity required, packing instructions, shipping schedule, and the port at which the goods were to be delivered. The document sent by Aura Textiles is known as: A) Export Invoice B) Indent C) Letter of Credit D) Bill of Entry	1
19	Companies generally invite public deposits for a maximum period of _ _ _ _ _ _ _ A) 2 years B) 3 years C) 4 years D) 5 years	1
20	It is an insulating material or inside part of a computer chip designed to perform an electronic circuitry function. Name the type of intellectual property right reflected in the above statement. A) Semiconductor integrated circuits layout design B) Patent C) Plant Variety D) Design	1

21.	(A) Micro, Small and Medium Enterprises (MSMEs) are considered as a powerful instrument for realizing the twin objectives of 'accelerated industrial growth and creating additional productive employment potential in rural and backward areas.' Elaborate on the contribution of MSMEs to the socio-economic development of the country. OR (B) With a view to promote startups in the country, various ways of funding are available in market. Explain any three such ways of funding.	3
22.	A transport company obtained an accident insurance policy for all its vehicles. One of its trucks, carrying a consignment of oranges, met with an accident. Although the oranges were not damaged in the accident, they had to be unloaded from the damaged truck and reloaded onto another vehicle. The delay caused by unloading and reloading resulted in the oranges getting spoiled. (a) Is the company entitled to receive compensation from the insurance company for the loss of oranges? (b) Identify and explain the principle of insurance applicable to this case.	3
23.	Komoto Corporation is a foreign company registered in Japan. It manufactures advanced machinery and tools used in the paper manufacturing industry. The company is known for its high quality products and technological superiorities in their methods of production. Encouraged by a favorable business environment, growing market and skilled workforce, the company decided to establish a branch manufacturing unit in India aiming to occupy a dominant position in the Indian market. The company plans to spend ₹10 crores on research and development projects in order to develop superior designs. Identify and state the features of global enterprise discussed in the case study.	3
24.	'Business risk refers to the possibility of inadequate profits or even losses due to uncertainties or unexpected events'. With reference to the given statement, state any three characteristics of business risk. OR 'Objectives are needed in every area that influences the survival and prosperity of business'. Using the given statement as a basis, state any three objectives of business.	3

25.	Freshju, initially a trading company, was selling bottled juices manufactured by other companies. Seeing an increase in demand for packaged beverages, the company decides to enter into juice manufacturing. It plans to distribute its products across different states of India through a network of wholesalers and retailers. To ensure that its products reach consumers at the right place and at the right time, Freshju has appointed distributors in major cities and is supplying goods to retailers through wholesalers. As the wholesalers are directly connected with the retailers, they are in a position to advise Freshju about various aspects like customer's tastes and preferences, market conditions etc. Wholesalers take delivery of goods, when these are produced in factories and keep them in their own warehouses. A) Identify the type of trade being carried out by Freshju when it sells its products across different states of India. B) Name and state the services provided by wholesalers to Freshju as mentioned in the case.	4
26.	After completing a specialised entrepreneurship programme in sustainable production, three friends—Dev, Bhagya and Sharvie decided to establish their own ventures. • Dev launched a business that procures solar panels, batteries, charge controllers, metal frames, and wiring from different manufacturers and integrates them into portable solar power stations. • Bhagya started a venture that manufactures advanced insulation panels by combining ingredients like cork granules, recycled paper fibres, and natural binders in carefully measured proportions. • Sharvie set up a factory where discarded fruit peels are converted into natural cleaning liquid through a series of sequential operations involving extraction, filtration, concentration, and packaging A) Identify the type of Secondary Industry highlighted in the case. B) On the basis of method of operation of business, explain the sub type of industry under the type identified in part A) to which Dev, Bhavya & Sharvie belong to.	4
27	A) State any four features of a mail order house. OR B) State any four benefits of international business to firms.	4

28.	GreenLeaf Stationers, a company that manufactures eco-friendly notebooks, pens, and office supplies, has decided to expand its business in different markets. The company collaborates with schools, offices, and corporate organizations through its GreenLeaf BizConnect portal. Corporate buyers can place bulk orders, customize products with company logos, and make digital payments. This helps GreenLeaf Stationers build long-term business relationships and increase bulk sales. It sells its products directly to customers through GreenLeaf Store e-commerce website and GreenLeaf App. Customers can browse products, compare prices, place orders online, choose digital payment options, and get home delivery. To attract more consumers, the company offers festive discounts, cashback offers, and free delivery on selected purchases. Within six months the company has been able to successfully expand its customer base and increase its market reach while promoting sustainable products. Identify and explain the modes of e-business used by GreenLeaf Stationers that have enabled it to expand its market operations and increase its sales.	4
29.	A)Describe the four main elements of a life insurance contract. OR B)Explain any four types of telecom services in India.	4

30.	REFRESHA' is a trading company, selling bottled juices made by other manufacturers. Now, it plans to sell its juices across India. For this, ' REFRESHA ' decides to enter into 'Juice manufacturing'. It also has ambitious plans to export its juices to other countries in the future. To meet anticipated higher demand in future, the company decides to set-up a larger manufacturing unit. The Chief Executive Officer, Ravi, plans to order automatic juice-filling and bottling machines to increase speed, improve hygiene and for consistency in production. The company decides to make use of a permanent source of funds without involving any explicit cost. To manage the expenses arising due to seasonal surges in demand during the peak season like higher cost of inventory and packaging etc , the company enters into an agreement with its supplier Fresh Fruits Enterprises who makes it readily available to ' REFRESHA' as its credit worthiness is already known . A) Identify the financial needs of ' REFRESHA' by quoting the lines from the case.	4
	B) Identify and explain the various sources of funds that ' REFRESHA' has used to manage its financial needs.	
31.	EcoCraft Electronics Ltd., a leading manufacturer of consumer appliances, detected that its manufacturing unit was releasing hazardous effluents into a local drainage system and using non-recyclable plastic packaging. Acknowledging its Social Responsibility, the CEO, Ms Rashika immediately resolved the commitment to create, maintain and develop work culture for pollution prevention. The company shifted to biodegradable packaging materials, collaborated with the State Government to clean polluted water bodies and manage hazardous waste, and trained its dealers and suppliers to actively support pollution control initiatives. (a) Identify the organizational concern being discussed above in the context of Social Responsibility of business. (b) State any five steps that business enterprises can take to address this concern.	6

32.	(A) Explain Financial Institutions as a source of long-term finance. State any four features of this source. OR (B) Explain how Commercial Banks serve as a source of business finance. State any four of its features.	6
33.	Raj and Vipul have finalised the name of their garment manufacturing venture and decide to register it as a public company. Before investing their savings, they want to define the purpose of the company and ensure that the business does not undertake activities beyond its intended purpose. They also want investors and other stakeholders to know the company's identity, financial structure and extent of members liability so as to avoid any ambiguity in future. A) Identify and state the legal document that should be prepared to provide the above details. B) Explain any four important clauses contained in this document.	6
34.	(A) Explain the significance of 'Obtaining Certificate of Origin', 'preparation of invoice' and 'obtaining mates receipt' as steps in the export procedure. OR	6
	(B) Explain the significance of 'receipt of shipment advice', 'procurement of import licence' and 'obtaining foreign exchange' as steps in the import procedure.	

CLASS -XI

BUSINESS STUDIES (054)

Sample Paper (2026-27)

Maximum Marks: 80

Marking Scheme/Hints to solutions

[Note: Any other relevant answer, not given here under but given by the candidates, be suitably awarded.]

Q.No	Value points/ Key points	Marks allotted to each key point	Total marks
1.	A) Place Utility, Time Utility	1	(1)
2.	D) One Person Company	1	(1)
3.	C) Preference Shares	1	(1)
4.	D) 1 and 3	1	(1)
5.	C) Licensing and Franchising	1	(1)
6.	B) Its employees are government servants, and its funding comes directly from the government treasury through annual budget allocations.	1	(1)
7.	C) I-C, II-A, III- D, IV-B	1	(1)
8.	A)Both the statements are true	1	(1)
9.	B) Debit Card for Rohan; Credit Card for Aarav	1	(1)
10.	A)Both Assertion (A) and Reason (R) are True and Reason (R) is the correct explanation of Assertion (A)	1	(1)
11.	B) The invention should be new and involve an inventive step. It should not be obvious to a person skilled in that field.	1	(1)
12.	B) Small Enterprise	1	(1)
13.	B) Facility is financed and owned by the private sector	1	(1)
14.	A) Departmental Store	1	(1)

15.	D)GST is based on the principle of destination-based consumption tax	1	(1)
16.	D)Statement II is true, Statement I is false	1	(1)
17.	B) General Agreement on Tariffs and Trade (GATT)	1	(1)
18.	B) Indent	1	(1)
19.	B) 3 years	1	(1)
20.	A) Semiconductor integrated circuits layout design	1	(1)
21.	(A) Contribution of MSME's-(any three points) (i) The contribution of these industries to the balanced regional development of our country is noteworthy. Small industries in India account for 95 per cent of the industrial units in the country. (ii) MSME are the second largest employers of human resources, after agriculture. They generate more employment opportunities per unit of capital invested compared to large industries. They are, therefore, considered to be more labour intensive and less capital intensive. This is a boon for a labour surplus country like India. (iii) MSME in our country supply an enormous variety of products which include mass consumption goods, readymade garments, hosiery goods, stationery items, soaps and detergents, domestic utensils, leather, plastic and rubber goods, processed foods and vegetables, wood and steel furniture, paints, varnishes, safety matches, etc. (iv) MSME which produce simple products using simple technologies and depend on locally available resources both material and labour can be set up anywhere in the country. Since they can be widely spread without any locational constraints, the benefits of industrialisation can be reaped by every region. They, thus, contribute significantly to the balanced development of the country (v) MSME provide ample opportunity for entrepreneurship. The latent skills and talents of people can be channelled into business ideas which can be converted into reality with little capital investment and almost nil formalities to start a small business.) MSME also enjoy the advantage of low cost of production. Locally available resources are less expensive. Establishment and running costs of small	1x3=3	(3)

	industries are on the lower side because of low overhead expenses. (vii) Due to the small size of the organisations, quick and timely decisions can be taken without consulting many people as it happens in large sized organisations. OR (B) Ways to provide financial assistance to start-ups (any three) (i) Boot strapping: Commonly known as self financing, it is considered as the first funding option .Also, at a later stage, investors consider it as the merit. However, it is a good option of funding only if the initial requirement is small and handy. (ii) Crowdfunding: It is the pooling of resources by a group of people for a common goal. Crowdfunding is not new to India. There are many instances of organisations reaching out to common people for funding.These platforms help startups or small businesses to meet their funding requirements. (iii) Angel investment: Angel investors are individuals with surplus cash who have keen interest to invest in upcoming startups. They also offer mentoring or advice alongside capital. (iv) Venture capital: There are professionally managed funds which are invested in companies that have huge potential. Venture capitalists provide expertise, mentorship and act as a litmus test of where a business organisation is going, evaluating business from sustainability and scalability point of view. (v) Business incubators and accelerators: Early stage business can consider incubator and accelerator programmes as a funding option. These programmes assist hundreds of startup businesses every year. These two are generally used interchangeably. Incubators and accelerators ably connect the startups with mentors, investors and fellow startups using this platform. (vi) Microfinance and NFBCs: Micro finance is access to financial services to those who either do not have access to conventional banking services or have not qualified for a bank loan. Similarly, NBFCs (Non Banking Financial Corporation) provides banking services without meeting legal requirement/definition of a bank	1x3=3	

22.	(a) No, the company will not receive compensation for the loss of the oranges. (b) Principle of Proximate Cause (Causa Proxima)-: According to this principle, an insurance policy is designed to provide compensation only for such losses as are caused by the perils which are stated in the policy. When the loss is the result of two or more causes, the proximate cause means the direct, the most dominant and most effective cause of which the loss is the natural consequence. In case of loss arising out of any mishap, the most proximate cause of the mishap should be taken into consideration.	1+1+1	(3)
23.	Three features of global enterprises are: **(i) Advanced technology:** These enterprises possess technological superiorities in their methods of production. They are able to conform to international standards and quality specifications. This leads to industrial progress of the country in which such corporations operate since they are able to optimally exploit local resources and raw materials. Computerisation and other inventions have come due to the technological advancements provided by MNCs. **(ii) Product innovation:** These enterprises are characterised by having highly sophisticated research and development departments engaged in the task of developing new products and superior designs of existing products. Qualitative research requires huge investment which only global enterprises can afford. **(iii) Expansion of market territory:** Their operations and activities extend beyond the physical boundaries of their own countries. Their international image also builds up and their market territory expands enabling them to become international brands. They operate through a network of subsidiaries, branches and affiliates in host countries. Due to their giant size they occupy a dominant position in the market.	½ mark each for identification + ½ mark each for explanation	(3)
24.	(A) Characteristics of business risk are(any three): **(i) Risk is an essential part of every business:** Every business has some risk. No business can avoid risk, although the amount of risk may vary from business to	1x3=3	(3)

	business. Risk can be minimised, but cannot be eliminated. **(ii) Business risks arise due to uncertainties:** Uncertainty refers to the lack of knowledge about what is going to happen in future. Natural calamities, change in demand and prices, changes in government policies and prices, improvement in technology, etc., are some of the examples of uncertainty which create risks for business because the outcomes of these future events are not known. **(iii) Degree of risk depends mainly upon the nature and size of business:** Nature of business (i.e., type of goods and services produced and sold) and size of business (i.e., volume of production and sale) are the main factors which determine the amount of risk in a business. **(iv) Profit is the reward for risk taking**: 'No risk, no gain' is an age-old principle which applies to all types of business. Greater the risk involved in a business, higher is the chance of profit. An entrepreneur undertakes risks under the expectation of higher profit. Profit is thus the reward for risk taking. OR (B) Objectives of business are (Any three): (i) **Market standing:** Maintaining goodwill and reputation of one's business is paramount to succeed and prosper. It helps in forming a distinct identity in the market and is referred to as market standing in relation to its competitors. A business enterprise must aim at standing on stronger footing in terms of offering competitive products at reasonable prices to its customers and serving them to their satisfaction. (ii) **Productivity:** Productivity is ascertained by comparing the value of output with the value of inputs. It is used as a measure of efficiency. In order to ensure continuous survival and progress, every enterprise must aim at greater productivity through the best use of available resources. **(iii) Physical and financial resources:** Any business requires physical resources, like plants, machines, offices, etc., and financial resources, i.e., funds to be able to produce and supply goods and services to its customers. The business enterprise must aim at acquiring these resources according to their	½ mark for each heading + ½ mark for explanation	

	requirements and use them efficiently. (iv) **Innovation:** Innovation is central to the growth of any business enterprise. It helps business to scale up and give competitive edge to the enterprise in the market. Innovation is defined as an introduction of new ideas or methods in the way something is done or made. There are two kinds of innovation in every business, i.e., (i) innovation in product or services; and (ii) innovation in various skills and activities needed to supply products and services. (v)**Earning profits**: One of the objectives of business is to earn profits on the capital employed. Profitability refers to profit in relation to capital investment. Every business must earn a reasonable profit which is so important for its survival and growth. (vi) **Social responsibility**: Social responsibility refers to the obligation of business firms to contribute resources for solving social problems and work in a socially desirable manner.		

25.	(A) Internal trade: Buying and selling of goods and services (within the boundaries of a nation are referred to as internal trade. (B) Services provided by wholesalers to Freshju are: **Expert advice**: As the wholesalers are in direct contact with the retailers, they are in a position to advice the manufacturers about various aspects including customer's tastes and preferences, market conditions, competitive activities and the features preferred by the buyers. They serve as an important source of market information on these and related aspects. **Storage:** Wholesalers take delivery of goods when these are produced in factory and keep them in their godowns/warehouses. This reduces the burden of manufacturers of providing for storage facilities for the finished products. They thus provide time utility.	½ mark for each identification + ½ mark for each explanation	(4)
26.	(A) Manufacturing industry: These industries are engaged in producing goods through processing of raw materials and, thus, creating form utilities. (B) the sub type of industry are: • Dev - Assembling industry which assembles different component parts to make a new product • Bhagya - Synthetical industry which combines various ingredients into a new product. • Sharvie - Processing industry which involves successive stages for manufacturing finished products	½ mark for each identification+ ½ mark For each explanation	(4)

27.	A)Features of mail order houses(any four): 1) Limited Capital requirement 2) Elimination of middlemen 3) Absence of bad debts 4) Wide reach 5) Convenience (ANY OTHER POINT WITH SUITABLE EXPLANATION) OR B)Benefits to firms of International Trade to firms(any four): 1) Prospects for higher profits 2) Increased capacity utilization 3) Prospects for growth 4) Way out to intense competition in domestic market 5) Improved business vision (WITH SUITABLE EXPLANATION)	1x 4 = 4 1x 4 = 4	(4)
28.	**B2B Commerce**: Here, both the parties involved in e-commerce transactions are business firms, and, hence the name B2B, i.e., business-to-business. Creation of utilities or delivering value requires a business to interact with a number of other business firms which may be suppliers or vendors of diverse inputs; or else they may be a part of the channel through which a firm distributes its products to the consumers. **B2C Commerce**: B2C (business-to-customers) transactions have business firms at one end and its customers on the other end. Although, what comes to one's mind instantaneously is online shopping, it must be appreciated that 'selling' is the outcome of the marketing process. And, marketing begins well before a product is offered for sale and continues even after the product has been sold.	1 mark for each identification+ 1 mark each explanation	(4)

29.	The main elements of a life insurance contract are: (i) The life insurance contract must have all the essentials of a valid contract. Certain elements like offer and acceptance, free consent, capacity to enter into a contract, lawful consideration and lawful object must be present for the contract to be valid; (ii) The contract of life insurance is a contract of utmost good faith. The insured should be honest and truthful in giving information to the insurance company. He must disclose all material facts about his health to the insurer. It is his duty to disclose accurately all material facts known to him even if the insurer does not ask him In life insurance, the insured must have insurable interest in life assured. Without insurable interest the contract of insurance is void. In case of life insurance, insurable interest must be present at the time when the insurance is affected. It is not necessary that the insured should have insurable interest at the time of maturity also. (iv) Life insurance contract is not a contract of indemnity. The life of a human being cannot be compensated and only a specified sum of money is paid. That is why the amount payable in life insurance on the event is fixed in advance. The sum of money payable is fixed, at the time of entering into the contract. (ANY OTHER SUITABLE POINT) OR	1X 4 = 4	(4)

	The various types of telecom services are: (i) Cellular mobile services: These are all types of mobile telecom services including voice and nonvoice messages, data services and PCO services utilising any type of network equipment within their service area. They can also provide direct inter connectivity with any other type of telecom service provider. (ii) Fixed line services: These are all types of fixed services including voice and non-voice messages and data services to establish linkages for long distance traffic. These utilise any type of network equipment primarily connected through fiber optic cables laid across the length and breadth of the country. The also provide inter connectivity with other types of telecom services. (iii) Cable services: These are linkages and switched services within a licensed area of operation to operate media services, which are essentially oneway entertainment related services.The two-way communication including voice, data and information services through cable network would emerge significantly in the future. Offering services through the cable network would be similar to providing fixed services. (iv) VSAT services: VSAT (Very Small Aperture Terminal) is a satellite based communications service. It offers businesses and government agencies a highly flexible and reliable communication solution in both urban and rural areas. Compared to land-based services, VSAT offers the assurance of reliable and uninterrupted service that is equal to or better than land-based services. It can be used to provide innovative applications such as tele-medicine, newspapers-on-line, market rates and tele-education even in the most remote areas of our country. (v) DTH services: DTH (Direct to Home) is again a satellite-based media service provided by cellular companies. One can receive media services directly through a satellite with the help of a small dish antenna	1X 4 = 4	

	and a set top box. The service provider of DTH services provides a bouquet of multiple channels. It can be viewed on our television without being dependent on the services provided by the cable network services provider. (ANY FOUR)		
30.	(A) (i) Fixed capital requirements "*To meet anticipated higher demand in future, the company decides to set-up a larger manufacturing unit."* (ii) Working capital requirements: "*To manage the expenses arising due to seasonal surges in demand during the peak season like higher cost of inventory and packaging etc,* the company enters into an agreement with its supplier Fresh Fruits Enterprises who makes it readily available to ' REFRESHA' as its credit worthiness is already known . (B) Trade credit Trade credit is the credit extended by one trader to another for the purchase of goods and services. Trade credit facilitates the purchase of supplies without immediate payment. Such credit appears in the records of the buyer of goods as 'sundry creditors' or 'accounts payable'. Retained earnings: A company generally does not distribute all its earnings amongst the shareholders as dividends. A portion of the net earnings may be retained in the business for use in the future. This is known as retained earnings. It is a source of internal financing or self-financing or 'ploughing back of profits'.	½ mark for identification + ½ mark for quoting lines+ ½ mark each for identification of each source +½ mark for explanation	(4)

31.	(A) Environmental Protection (B) Some of the specific steps which can be taken by business enterprises for environmental protection are as stated below:(any five) (i) A definite commitment by top management of the enterprise to create, maintain and develop work culture for environmental protection and pollution prevention. (ii) Ensuring that commitment to environmental protection is shared throughout the enterprise by all divisions and employees. (iii) Developing clear-cut policies and programmes for purchasing good quality raw materials, employing superior technology, using scientific techniques of disposal and treatment of wastes and developing employee skills for the purpose of pollution control. (iv) Complying with the laws and regulations enacted by the Government for prevention of pollution. (v) Participation in government programmes related to management of hazardous substances, clearing up of polluted rivers, plantation of trees, and checking deforestation. (vi) Periodical assessment of pollution control programmes in terms of costs and benefits so as to increase the progress with respect to environmental protection. (vii) Arranging educational workshops and training materials to share technical information and experience with suppliers, dealers	1 mark for identification + 1 mark each for stating each step	(6)

32.	**Loans from financial institutions**: The government has established a number of financial institutions all over the country to provide finance to business organisations. These institutions are established by the central as well as state governments. They provide both owned capital and loan capital for long and medium term requirements and supplement the traditional financial agencies like commercial banks. As these institutions aim at promoting the industrial development of a country, these are also called 'development banks'. In addition to providing financial assistance, these institutions also conduct market surveys and provide technical assistance and managerial services to people who run the enterprises. This source of financing is considered suitable when large funds for longer duration are required for expansion, reorganisation and modernisation of an enterprise. (ANY OTHER SUITABLE POINT) OR **Commercial banks** occupy a vital position as they provide funds for different purposes as well as for different time periods. Banks extend loans to firms of all sizes and in many ways, like, cash credits, overdrafts, term loans, purchase/discounting of bills, and issue of letter of credit. The rate of interest charged by banks depends on various factors such as the characteristics of the firm and the level of interest rates in the economy. The loan is repaid either in lump sum or in installments. Bank credit is not a permanent source of funds. Though banks have started extending loans for longer periods, generally such loans are used for medium to short periods. The borrower is required to provide some security or create a charge on the assets of the firm before a loan is sanctioned by a commercial bank (ANY OTHER SUITABLE POINT)	2 marks for meaning+1 mark for each feature	(6)

33.	**(A) Memorandum of Association**: Memorandum of Association is the most important document as it defines the objectives of the company. No company can legally undertake activities that are not contained in its Memorandum of Association. As per section 2(56) of The Companies Act, 2013 **(B)** Memorandum of Association contains different clauses, which are given as follows: (i) The name clause: This clause contains the name of the company with which the company will be known, which has already been approved by the Registrar of Companies. (ii) Registered office clause: This clause contains the name of the state, in which the registered office of the company is proposed to be situated. The exact address of the registered office is not required at this stage but the same must be notified to the Registrar within thirty days of the incorporation of the company. (iii) Objects clause: This is probably the most important clause of the memorandum. It defines the purpose for which the company is formed. A company is not legally entitled to undertake an activity, which is beyond the objects stated in this clause. The main objects for which the company is formed are listed in this sub-clause. It must be observed that an act which is either essential or incidental for the attainment of the main objects of the company is deemed to be valid, although it may not have been stated explicitly. (iv) Liability clause: This clause limits the liability of the members to the amount unpaid on the shares owned by them. (v) Capital clause: This clause specifies the maximum capital which the company will be authorised to raise through the issue of shares. (ANY FOUR POINTS)	1 mark for identification+ 1 mark for statement+ 4 marks for explanation	(6)

34.	**Obtaining certificate of origin:** Some importing countries provide tariff concessions or other exemptions to the goods coming from a particular country. For availing such benefits, the importer may ask the exporter to send a certificate of origin. The certificate of origin acts as a proof that the goods have actually been manufactured in the country from where the export is taking place. This certificate can be obtained from the trade consulate located in the exporter's country. **Preparation of invoice:** After sending the goods, an invoice of the despatched goods is prepared. The invoice states the quantity of goods sent and the amount to be paid by the importer. The C&F agent gets it duly attested by the customs. **Obtaining mate's receipt**: The goods are then loaded on board the ship for which the mate or the captain of the ship issues mate's receipt to the port superintendent. A mate receipt is a receipt issued by the commanding officer of the ship when the cargo is loaded on board, and contains the information about the name of the vessel, berth, date of shipment, description of packages, marks and numbers, condition of the cargo at the time of receipt on board the ship, etc. The port superintendent, on receipt of port dues, hands over the mate's receipt to the C&F agent. OR **Receipt of shipment advice**: After loading the goods on the vessel, the overseas supplier dispatches the shipment advice to the importer. A shipment advice contains information about the shipment of goods. The information provided in the shipment advice includes details such as invoice number, bill of lading/airways bill number and date, name of the vessel with date, the port of export, description of goods and quantity, and the date of sailing of vessel.	2 marks for each point 2 marks for each point	(6)

	Procurement of import license: There are certain goods that can be imported freely, while others need licensing. The importer needs to consult the Export Import (EXIM) policy in force to know whether the goods that he or she wants to import are subject to import licensing. In case goods can be imported only against the licence, the importer needs to procure an import licence. In India, it is obligatory for every importer (and also for exporter) to get registered with the Directorate General Foreign Trade (DGFT) or Regional Import Export Licensing Authority, and obtain an Import Export Code (IEC) number. This number is required to be mentioned on most of the import documents. **Obtaining foreign exchange:** Since the supplier in the context of an import transaction resides in a foreign country, he/she demands payment in a foreign currency. Payment in foreign currency involves exchange of Indian currency into foreign currency. In India, all foreign exchange transactions are regulated by the Exchange Control Department of the Reserve Bank of India (RBI). As per the rules in force, every importer is required to secure the sanction of foreign exchange. For obtaining such a sanction, the importer has to make an application to a bank authorised by RBI to issue foreign exchange. The application is made in a prescribed form along with the import licence as per the provisions of Exchange Control Act. After proper scrutiny of the application, the bank sanctions the necessary foreign exchange for the import transaction.		

CLASS-XI

ECONOMICS (030)

Sample Paper (2026-27)

Time allowed: 3hours *Maximum Marks: 80*

General Instructions:

1. *This question paper contains two sections:*

   Section A - Statistics (40)

   Section B-Microeconomics (40)

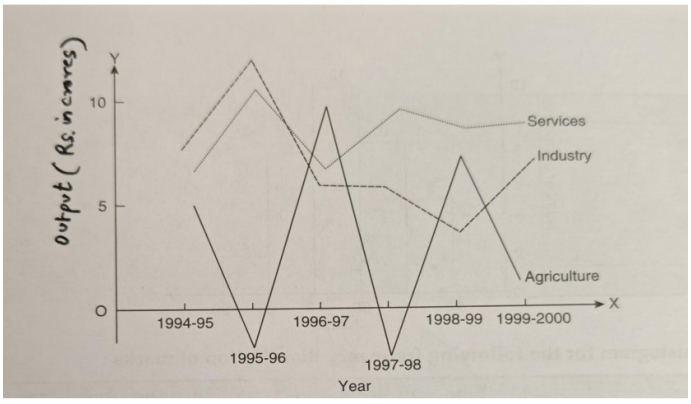
2. *Marks for questions are indicated against each question.*
3. *Question Nos.1-10 and 18-27 are MCQ carrying 1 mark each.*
4. *Question Nos. 11-12 and 28-29 are short answer questions carrying 3 marks each and are to be answered in 60 -80 words each.*
5. *Question Nos. 13-15 and 30-32 are also short answer questions carrying 4 marks each and are to be answered in 80-100 words each.*
6. *Question Nos. 16-17 and 33-34 are long answer questions carrying 6 marks each and are to be in 100-150 words.*
7. *Word limit is to be followed only for theory questions.*

Section -A (Statistics)

1. Identify the correct statement from the following:

a) When you do not sell good to make a profit for yourself you are called a seller.
b) The study of production refers to how producer chooses which technology to use is production.
c) Scarcity is the root cause of all economic problems.
d) Statistics deals only with quantitative data. (1)

2. Identify the graph given in the following picture:



Alternatives:
a) Time Series graph
b) Frequency graph
c) Frequency polygon
d) Cumulative frequency curve (1)

3. The arithmetic mean of 10 observations is 16. If 10 is added to each observation, the arithmetic mean will be _____. (1)

a)160
b)26
c)100
d)60

4. The _____ was established by the Government of India to conduct nation-wide surveys on socio-economic issues in successive rounds. (1)

a) National Sample Survey Organisation

b) National Sample Service Office

c) Labour Bureau

d) Census of India

5. Read the following statements carefully: (1)

Statement 1 – Not every numerical data is Statistics.

Statement 2– Statistical laws are universal.

Choose the correct alternative:

a) Both the statements 1& 2 are true.
b) Both the statements 1&2 are false.
c) Statement 1 is true and statement 2 is false.
d) Statement 1 is false and statement 2 is true.

6. A histogram is a_____ (1)

i) Chronological presentation of data

ii) Two-dimensional diagram

iii) One-dimensional diagram

iv) Graphical representation of mode

Choose the correct alternative:

a) (i) (iii) and (iv)
b) (ii) & (iv)
c) (i) (ii)& (iv)
d) (i) ,(iv) & (iii)

7 Match the statements given in columns I & II (1)

Column I		Column II
(i)	Height of a student	A. Classification of data
(ii)	Number of employees in a factory	B .Discrete variable
(iii)	Item listed in group or classes	C .Bivariate frequency distribution
(iv)	Two way frequency distribution	D .Continuous variable

Alternatives :

a) (i)A, (ii)B, (iii)D, (iv)A
b) (i)C, (ii)B, (iii)D, (iv)A
c) (i)D, (ii)B, (iii)C, (iv)A
d) (i)D (ii)B, (iii)A, (iv)C

8. Read the following statements: Assertion (A) and Reason (R)and choose the correct alternative: (1)

Assertion (A): Exclusive Series ensures continuity of data.

Reason (R): In case of exclusive series, upper limit of one class is the lower limit of succeeding class.

Choose the correct alternative:

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 and 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.

9. In a class of 15 students, 5 students failed in a test. The marks scored by the students who passed the test are: 6,5,8,7,6,5,4,8,9& 10. Calculate the median marks of this class. (1)

a) 5.5
b) 5
c) 6
d) 6.5

10. The _____measures changes in the level of Industrial Production comprising many industries. (1)

a) CPI
b) WPI
c) IIP
d) IAPI

11. Construct a less than ogive for the following data showing the marks of 50students. (3)

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. Of students	2	3	7	11	15	7	2	3

12. “Even though personal interviews are costly, they are still preferred by an enumerator.” Justify the statement.

OR

Elaborate the need for conducting Pilot survey. (3)

13. The following table gives the distribution of monthly salary of 900 employees However, the frequencies of the classes 40-50 and 60-70 are missing. If the median of the distribution is 59.25, find the missing frequencies. (4)

Salaries (Rs in thousands)	30-40	40-50	50-60	60-70	70-80
Number of employees	120	?	200	?	185

14. Give meaning of Index number. Elaborate any three features of an Index number. (4)

15. The mean age of a combined group of men and women is 30 years. If the mean age of the group of men is 32 and that of the group of women is 27, find out the percentage of men and women in the group.

OR

Calculate the mean marks of 50 students from the following data using step deviation method: (4)

Marks	More than 35	30-35	25-30	20-25	15-20	Less than 15
No of students	7	10	15	9	5	4

16. Calculate the value of mode from the following series: (6)

X	10-20	20-30	30-40	40-50	50-60	60-70
F	8	10	22	21	20	5

17. Calculate the coefficient of rank correlation between X & Y variables & interpret the result. (6)

X	10	20	35	14	18	21	16
Y	15	25	18	19	20	26	27

OR

Elaborate the properties of Karl Pearson's coefficient of correlation.

Section -B (Introductory Micro Economics)

18. At the point of intersection of two straight line demand curves, the flatter curve has: (1)

a) Greater elasticity
b) Lesser elasticity
c) Equal elasticity
d) Zero elasticity

19. Read the following statements, Assertion and Reason and select the correct alternative. (1)

Assertion(A): General price level in an economy is a concept of microeconomics.

Reason (R): Microeconomics relates to the study of behavior of an individual consumer or individual producer.

a) Both Assertion(A) and Reason (R) are true and Reason (R) are 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

20. As Total utility falls, Marginal utility is: (1)

a) Positive and increasing
b) Positive and decreasing
c) Zero
d) Negative

21. Which of the following is not an assumption of Law of Demand : (1)

a) Own price of the commodity should remain constant
b) Income of the consumers should remain constant
c) Price of related goods should not change
d) There should be no change in consumers, taste, and preferences.

22. Read the following statement carefully and choose the correct alternative: (1)

Statement 1: Each indifference curve on an indifference map represents a different level of satisfaction

Statement 2: Each point on an indifference curve represents equal level of satisfaction.

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

23. In case of an inelastic supply curve, elasticity is: (1)

a) Equal to zero
b) Less than one
c) More than one
d) Equal to One

24. What will happen in the market if the market price is above the equilibrium price? (1)

a) Competition among the buyers
b) Price tends to rise
c) Excess demand
d) Excess supply

25. The implication of free entry and exit in a perfectly competitive market will be: (1)

a) No firm can earn abnormal profits in the long run
b) Firm cannot earn abnormal profits in short run.
c) Firm cannot avoid losses.
d) Firm can earn abnormal profits in the long run

26. Read the following statements and choose the correct option statement. (1)

Statement 1: Imposition of price ceiling below the equilibrium price leads to a situation of excess supply.

Statement 2: Imposition of price floor above the equilibrium price leads to an excess demand.

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

27. The demand curve of a perfectly competitive firm is a horizontal straight line parallel to the X axis. It happens because – (1)

a) Selling costs are zero
b) There is a free entry and exit
c) Firm is a price taker
d) Firm is a price maker

28. As per The Hindu dated August 27, 2026.'At least 157 people were killed and more than 400 people, 133 Indians among them, were missing or out of contact after a massive flash flood in Nepal's Bhotekoshi River, in Rasuwa a District bordering China's Tibet region, on Wednesday.'

What is the expected impact on PPC of Nepal? Use Diagram (3)

29. What would be the shape of AR curve if TR curve is: (3)

a) A positively sloped straight line passing through the origin
b) A horizontal line parallel to X axis

OR

Explain the relationship between Average revenue and marginal revenue when

a) A firm is able to sell more quantity of output at the same price
b) A firm is able to sell more quantity of output by lowering the price

30. Briefly explain, how withdrawal of subsidy on inputs given to a firm is likely to affect supply of the good? Use a diagram to support your answer. (4)

31. Consumer consumes only two goods, Burger and Coke, both are priced at ₹30 per unit. If the consumer chooses a combination of these goods with Marginal Rate of Substitution equal to 30. Is the consumer in equilibrium? What will the rational consumer do in such a situation? Explain. (4)

OR

A consumer has a total money income of ₹250 to be spent on 2 goods, Good X and Good Y, with prices of ₹25 and ₹10 per unit respectively. On the basis of this information answer the following questions:

a) Give the equation of the budget line
b) What is the value of slope of the budget line?
c) Calculate the quantity of X when the consumer chooses to spend his entire income on Good X.
d) How does the budget line change if there is a fall in the price of Good Y, other things remaining constant?

32. As per a news report 'War between the USA and Iran, has led to restrictions in the Strait of Hormuz which has instantly cut off major export flows of L.P.G, from West Asian producers like UAE, Qatar, Saudi Arabia to India' (4)

In light of the above situation, explain the expected impact on equilibrium price and quantity of LPG in India?

33. Explain the behavior of TP and MP, when output changes with application of a variable factor while other factors are kept constant. Use schedule. (6)

OR

From the following information about a firm, find the equilibrium output using MR-MC approach.

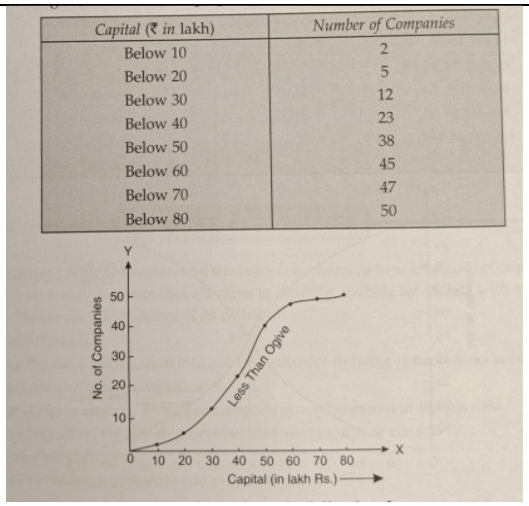
Output	Total Revenue (Rupees)	Total Variable Cost (Rupees)
1	6	7
2	12	13
3	18	17
4	24	23
5	30	31

34. a) Define Market Demand. If air pollution in Delhi increases, what will be the effect on market demand for Air Purifiers? (6)

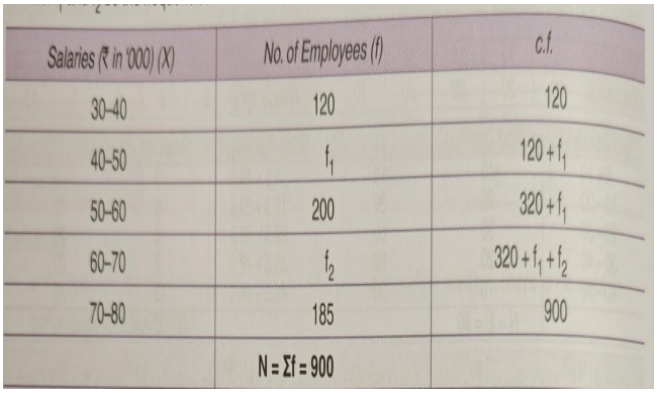
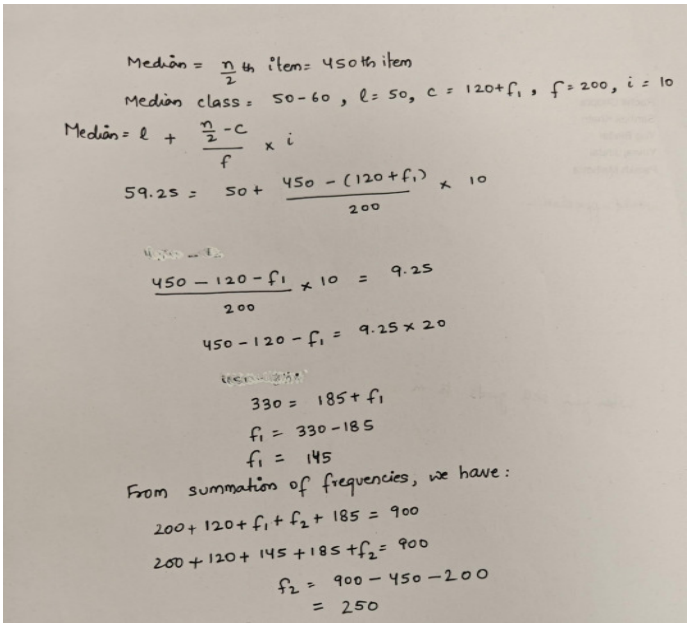
b) A consumer buys 20 units of a good at a price of ₹5 per unit. He incurs an expenditure of ₹120 when he buys 24 units. Calculate price elasticity of demand using the Percentage Method.

CLASS-XI
ECONOMICS (030)
Marking Scheme (2026-27)

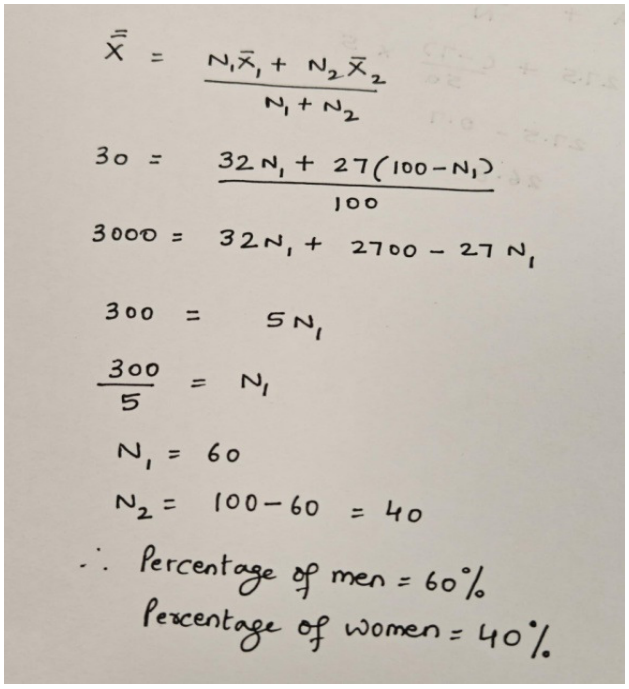
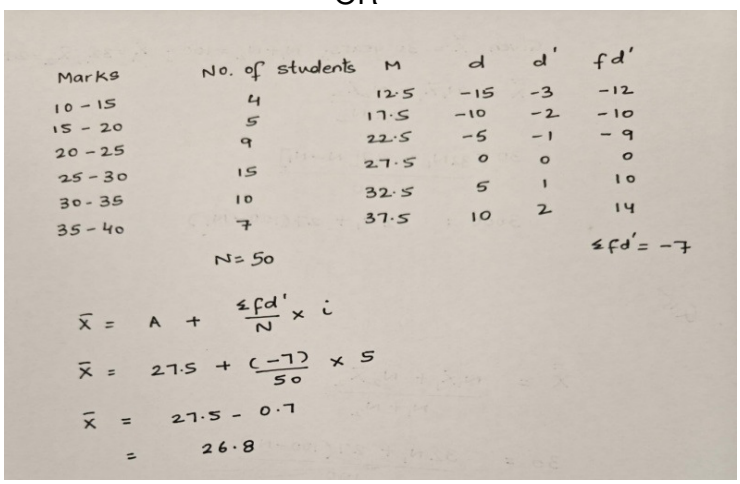
Value Points (Any other valid answer to be awarded)

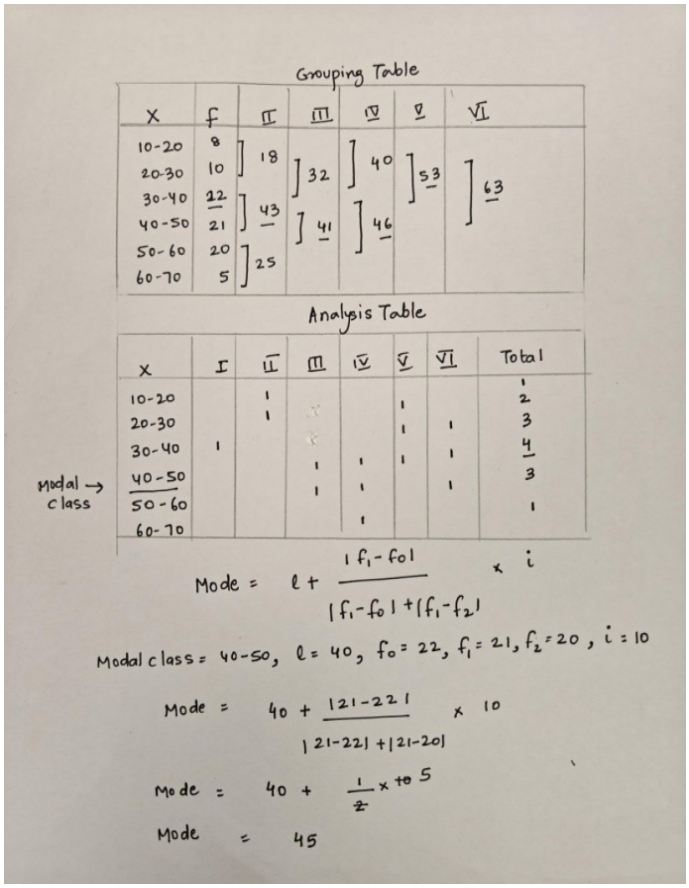
S. No.	Value Points (PART A)	Marks	Total Marks
1	c) scarcity is the root cause of all economic problems		1
2	a) Time series graph		1
3	b) 26		1
4	a) National sample survey organization		1
5	c) Statement 1 is true and statement 2 is false.		1
6	b) (ii) and (iv)		1
7	d) (i)d, (ii)b,(iii)a,(iv)c		1
8	a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Reason(R)		1
9	b) 5		1
10	c) IIP		1
11		1.5 1.5	3

Capital (₹ in lakh)	*Number of Companies*
Below 10	2
Below 20	5
Below 30	12
Below 40	23
Below 50	38
Below 60	45
Below 70	47
Below 80	50

12	ADVANTAGES OF PERSONAL INTERVIEW 1)Highest Response Rate 2)Allows use of all types of questions Better for using open-ended questions 3)Allows clarification of ambiguous questions. OR 1)The pilot survey helps inpre-testing of the shortcomings and drawbacks of thequestionnaire 2)It helps in pre-testing of assessing the suitability of questions. 3)Pilot survey also helps in clarity of instructions & performance of enumerators and the cost and time involved in the actual survey.	1 1 1 1 1 1	3
13	  	0.5 0.5 1 1 1	4

14	An index number is a statistical device for measuring changes in the magnitude of a group of related variables. Features 1)Expressed in terms of percentage 2)Measures the average change in group of related variables over two different situations. 3)Price index number measure and compare prices of goods, cost of living, inflation etc. 4) Production/quantity index numbers of measure changes in the physical volume of production. (any three)	1 1 1 1	 4

15	 $\bar{X} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2}{N_1 + N_2}$ $30 = \frac{32N_1 + 27(100 - N_1)}{100}$ $3000 = 32N_1 + 2700 - 27N_1$ $300 = 5N_1$ $\frac{300}{5} = N_1$ $N_1 = 60$ $N_2 = 100 - 60 = 40$ ∴ Percentage of men = 60% Percentage of women = 40%	1 1 1 1	
	OR  Marks / No. of students / M / d / d' / fd' 10 – 15 / 4 / 12.5 / −15 / −3 / −12 15 – 20 / 5 / 17.5 / −10 / −2 / −10 20 – 25 / 9 / 22.5 / −5 / −1 / −9 25 – 30 / 15 / 27.5 / 0 / 0 / 0 30 – 35 / 10 / 32.5 / 5 / 1 / 10 35 – 40 / 7 / 37.5 / 10 / 2 / 14 N = 50 ; Σfd' = −7 $\bar{X} = A + \frac{\Sigma fd'}{N} \times i$ $\bar{X} = 27.5 + \frac{(-7)}{50} \times 5$ $\bar{X} = 27.5 - 0.7$ $= 26.8$	2 1 1	4

16		1 1 1 1 2	 6

Grouping Table

X	f	II	III	IV	V	VI
10-20	8	] 18				
20-30	10		] 32	] 40	] 53	
30-40	22	] 43				] 63
40-50	21		] 41	] 46		
50-60	20	] 25				
60-70	5					

Analysis Table

X	I	II	III	IV	V	VI	Total
10-20		1			1		2
20-30		1			1	1	3
30-40	1				1	1	4
Modal → 40-50			1	1		1	3
50-60			1	1			1
60-70				1			

$$\text{Mode} = l + \frac{|f_1 - f_0|}{|f_1 - f_0| + |f_1 - f_2|} \times i$$

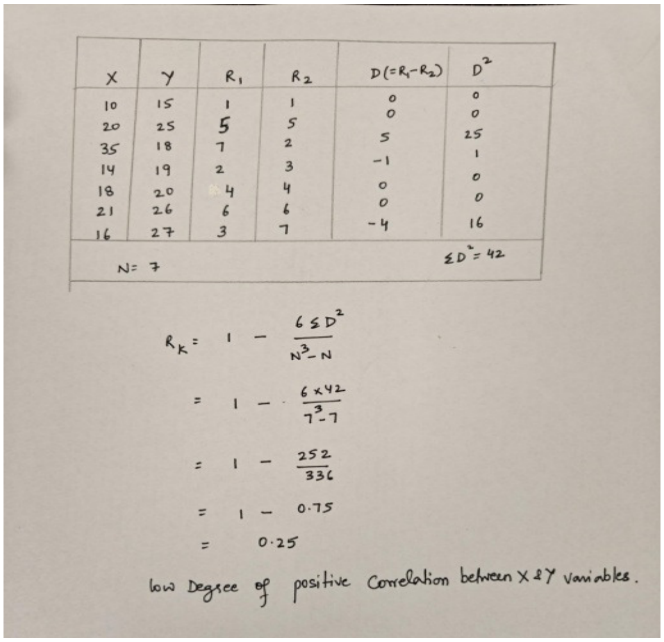
Modal class = 40-50, $l = 40$, $f_0 = 22$, $f_1 = 21$, $f_2 = 20$, $i = 10$

$$\text{Mode} = 40 + \frac{|21-22|}{|21-22| + |21-20|} \times 10$$

$$\text{Mode} = 40 + \frac{1}{2} \times 10 \times 5$$

$$\text{Mode} = 45$$

17



X	Y	R_1	R_2	$D (= R_1 - R_2)$	D^2
10	15	1	1	0	0
20	25	5	5	0	0
35	18	7	2	5	25
14	19	2	3	-1	1
18	20	4	4	0	0
21	26	6	6	0	0
16	27	3	7	-4	16
N = 7					$\Sigma D^2 = 42$

$$R_K = 1 - \frac{6 \Sigma D^2}{N^3 - N}$$

$$= 1 - \frac{6 \times 42}{7^3 - 7}$$

$$= 1 - \frac{252}{336}$$

$$= 1 - 0.75$$

$$= 0.25$$

low Degree of positive Correlation between X & Y variables.

Marks: 2, 1, 1, 1, 1

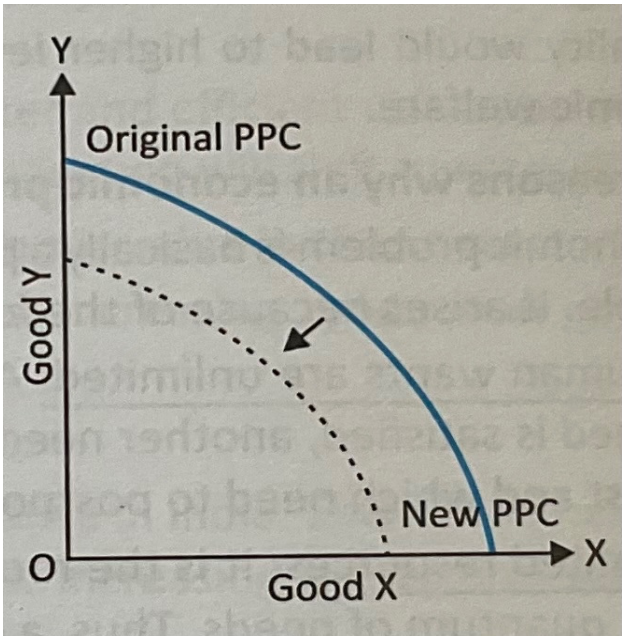
OR

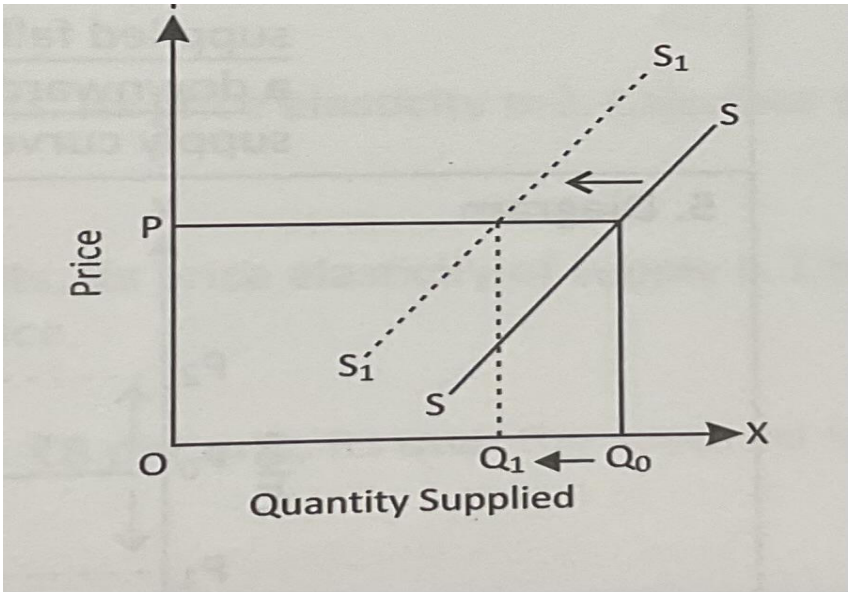
Properties of correlation coefficient unit

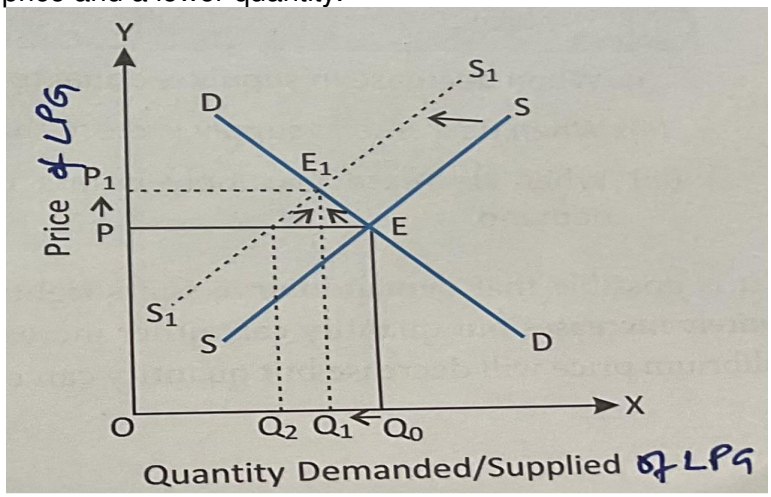
1) r has no unit.
2) The value of the correlation coefficient lies between minus one and plus one.
3) If r = 0, the two variables are uncorrelated.
4) High value of r indicates strong linear relationship.
5) A low value of r indicates a weak linear relationship.
6) The value of r is unaffected by the change of origin
7) The value of r is unaffected by the change of scale.

(any six)

1x6 | 6

Question no.	Value points (PART B)	Marks	Total marks
18.	a) Greater elasticity	1	
19.	d) Assertion(A) is false but Reason (R) is true	1	
20.	d) negative	1	
21.	a) commodity's own price should remain constant	1	
22.	c) Both the statements 1 and 2 are true	1	
23.	b) less than one	1	
24.	d) Excess supply	1	
25.	a) no firm can earn abnormal profits in the long run	1	
26.	d) Both statements 1 and 2 are false	1	
27.	c) firm is a price taker	1	
28.	PPC is expected to shift towards left due to destruction of resources.  	1 2	3

29.	Formula, AR=TR/output sold a) AR will be parallel to axis AR=TR/outputsold b) AR will be a downward sloping curve (AR falls) **OR** a) When the firm is able to sell more quantity of output at the same price both the AR and MR curves will be parallel to x axis. b) When the firm is able to sell more quantity of output only by lowering the price both the AR and MR curves will be downward sloping	1 1 1 1.5 1.5	3
30.	Subsidies are grants given to a firm by government which reduces the cost of production. Withdrawal of subsidies on inputs will increase the cost of production with the increase in the cost at constant prices. Profit of the producer falls forcing the firm to lower its production, hence supply curve will shift towards left.  	2 2	4
31.	Let Burger be commodity X, Coke be commodity Y Equilibrium condition is: Given values MRS = Px / Py, = 30/30 = 1 MRS = 30 Therefore, 30 ≠ 1	1 1 1	

	So, consumer is not in equilibrium. As MRS >Px/ Py a rational consumer will buy more units of X till MRS = Px/Py **OR** a) Px. X+ Py. Y= M 25X+ 10Y= 250 b) Slope of budget line = - Px/ Py = -25/10 (-) 2.5 c) Px. X+ Py. Y= M 25X+0=250 X =10 units d)Budget line rotates upward on Y axis	1 1 1 1 1	4
32.	Due to the restrictions, imports of LPG to India will be reduced as a result supply of LPG in the Indian market will decrease making the supply shift towards the left. As a result, there will be excess demand(Q2 Q0) for LPG at the initial price leading to competition among the buyers which will lead to bidding up of price. This will lead to contraction in demand and expansion in supply till the new equilibrium is attained at a higher price and a lower quantity.  	1 1 2	4

33.

Statement of law: According to the law of variable proportions, if more and more units of a variable factor are employed along with the fixed factors, TP (total product) first increases at an increasing rate, then at a diminishing rate and finally starts falling. In terms of marginal product, it first increases, then starts falling but remains positive and then it finally becomes negative.
Thus, according to this- production takes place in the following three phases:
Phase I: TP increases at an increasing rate; MP increases. (till third unit of output)
Phase II: TP increases at a diminishing rate; MP falls but remains positive. (till sixth unit of output)
Phase III: TP decreases; MP becomes negative.(seventh unit of output & beyond)

4

land (fixed factor)	Number of Labourers (variable factor)	TP	AP	MP
1	0	0	0	-
1	1	2	2	2
1	2	6	3	4
1	3	12	4	6
1	4	16	4	4
1	5	18	3.6	2
1	6	18	3	0
1	7	16	2.3	-2

2

(Or any other imaginary schedule)

OR

Output	TR	TVC	MC	MR
1	6	7	7	6
2	12	13	6	6
3	18	17	4	6
4	24	23	6	6
5	30	31	8	6

3

	Conditions producers' equilibrium. a) MR=MC b) MC>MR, after MR is equal to MC Since both conditions are satisfied at 4 th unit of output equilibrium will be at the 4 th unit of output.	2 1	 6
34.	a) Market demand means the quantity of a commodity that all consumers taken together are willing to purchase at a particular price during a given period of time. Due to increase in air pollution in Delhi, the demand for a purifiers will rise even though prices, income other factors affecting demand remain unchanged so there will be increase in market demand making the demand curve shift rightwards. b) Ed= P/Q X ∆Q/∆P = 5/20X4/0= ∞ (Perfectly elastic demand)	1 2 1 1 1	 6

Price (Exp/qty)	Qty	Exp (PxQ)
5	20	100
120/24= 5	24	120

प्रतिदर्श प्रश्न पत्र (2026-27)

विषय : हिंदी (आधार)

(विषय कोड - 302)

कक्षा - ग्यारहवीं

निर्धारित समय : 3 घंटे	**अधिकतम अंक : 80**

सामान्य निर्देश :

- **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 '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।**

खंड 'क' (अपठित बोध)

1. निम्नलिखित गद्यांश पर आधारित पूछे गए प्रश्नों के उत्तर लिखिए: (10)

उत्साह की सच्ची पहचान कर्म में है, शब्दों में नहीं। जो व्यक्ति केवल बातें बनाता है और हाथ पर हाथ धरे बैठा रहता है, उसके भीतर उत्साह नहीं, आलस्य का आवरण है। उत्साह वह बिजली है जो मनुष्य की शिराओं में दौड़कर उसे उठ खड़ा करती है। वह नदी की तरह है जो बाधाओं से टकराकर और भी वेग से बहती है।

जीवन में सफलता उन्हीं को मिलती है जो असफलता को सीढ़ी बना लेते हैं। गिरकर उठना, हारकर फिर लड़ना- यही उत्साह का धर्म है। इतिहास गवाह है कि बड़े-बड़े आविष्कार, बड़े-बड़े आंदोलन और बड़ी-बड़ी क्रांतियाँ उत्साह की ही संतान हैं। कोलंबस ने जब समुद्र में पतवार डाली थी, तब उसे किनारा नहीं दिख रहा था। गांधी जी ने जब सत्याग्रह का बिगुल फूँका था, तब जीत का भरोसा नहीं था। पर उत्साह ने उन्हें डगमगाने नहीं दिया।

आज का युवा कहता है- अवसर नहीं हैं, परिस्थितियाँ ठीक नहीं हैं। पर भूल जाता है कि परिस्थितियाँ मनुष्य बनाता है, मनुष्य परिस्थितियों का दास नहीं। जिसके भीतर आग है, वह राख में से भी चिंगारी निकाल लेता है। जिसके पास हौसला है, उसके लिए बंद दरवाजे भी खिड़की बन जाते हैं।

उत्साह का अर्थ उच्छृंखलता नहीं है। वह विवेक के साथ चलता है। वह धैर्य रखता है, पर ठहरता नहीं। वह योजना बनाता है, पर बहाने नहीं बनाता। इसलिए यदि जीवन में कुछ करना है, कुछ बनना है, तो पहले अपने भीतर उत्साह की लौ जलानी होगी, क्योंकि बिना लौ के दीया नहीं जलता और बिना जले अंधकार नहीं मिटता।

(i) गद्यांश में उत्साह की तुलना किससे की गई है? (1)

(क) शिराओं और बिजली से (ख) नदी और कर्म से

(ग) बिजली और नदी से (घ) कर्म और बिजली से

(ii) 'परिस्थितियाँ मनुष्य बनाता है'- इस कथन का तात्पर्य है- **(1)**

(क) भाग्यवादी बनो (ख) पलायनवादी बनो

(ग) प्रतिवादी बनो (घ) पुरुषार्थी बनो

(iii) 'राख में से चिंगारी निकालना' का अर्थ है- **(1)**

(क) असंभव कार्य को संभव बनाना (ख) कठिन परिस्थिति में भी रास्ता निकालना

(ग) छोटी-सी बात पर विवाद करना (घ) बेकार में समय व्यर्थ करना

(iv) लेखक के अनुसार बंद दरवाजे कब खिड़की बन जाते हैं? **(1)**

(v) 'उत्साह की लौ जलानी होगी'- इस कथन की वर्तमान संदर्भ में प्रासंगिकता स्पष्ट कीजिए। **(2)**

(vi) 'असफलता को सीढ़ी बनाना' से आप क्या समझते हैं? जीवन में इसका क्या महत्व है? **(2)**

(vii) आज का युवा अवसरों की कमी का बहाना बनाता है। लेखक इस सोच का खंडन कैसे करता है? **(2)**

2. निम्नलिखित पद्यांश पर आधारित पूछे गए प्रश्नों के उत्तर लिखिए: **(8)**

सत्य को लकवा मार गया है
वह लंबे काठ की तरह पड़ा रहता है
सारा-सारा दिन, सारी-सारी रात
वह आपका हाथ थामे रहेगा देर तक
वह आपकी ओर देखता रहेगा देर तक
वह आपकी बातें सुनता रहेगा देर तक

लेकिन लगेगा नहीं कि उसने आपको पहचान लिया है
जी नहीं, सत्य आपको बिल्कुल नहीं पहचानेगा
पहचान की उसकी क्षमता हमेशा के लिए लुप्त हो चुकी है
जी हाँ, सत्य को लकवा मार गया है
उसे इमर्जेंसी का शॉक लगा है
लगता है, अब वह किसी काम का न रहा
जी हाँ, सत्य अब पड़ा रहेगा
लोथ की तरह, स्पंदनशून्य मांसल देह की तरह!

(i) 'सत्य को लकवा मार गया है' पंक्ति का आशय क्या है? **(1)**

(क) सत्य हमेशा के लिए समाप्त हो गया है।

(ख) सत्य निष्क्रिय और असहाय बना दिया गया है।

(ग) सत्य अत्यंत शक्तिशाली हो गया है।

(घ) सत्य लोगों को पहचान नहीं पाता।

(ii) यदि किसी समाज में अभिव्यक्ति की स्वतंत्रता पर प्रतिबंध लगा दिया जाए, तो कविता का कौन-सा भाव सबसे अधिक प्रासंगिक होगा? **(1)**

(क) उत्सव और उल्लास
(ख) सत्य की विवशता और दमन
(ग) प्रकृति का सौंदर्य
(घ) परिश्रम का महत्व

(iii) निम्नलिखित कथनों पर विचार कीजिए– (1)

1. सत्य को निष्क्रिय और असहाय रूप में प्रस्तुत किया गया है।
2. सत्य लोगों की समस्याओं का समाधान कर रहा है।
3. कविता में **'**लकवा**'** दमन और विवशता का प्रतीक है।

सही विकल्प चुनिए–

(क) केवल **1** और **2**
(ख) केवल **2** और **3**
(ग) केवल **1** और **3**
(घ) **1, 2** और **3** तीनों

(iv) कविता में 'इमर्जेंसी' किसका प्रतीक है? (1)
(v) 'सत्य आपको बिल्कुल नहीं पहचानेगा' पंक्ति के माध्यम से कवि क्या संदेश देना चाहता है? (2)
(vi) कविता में 'पहचान की उसकी क्षमता हमेशा के लिए लुप्त हो चुकी है'- पंक्ति सत्य की किस विडंबना को व्यक्त करती है? (2)

खंड-ख (अभिव्यक्ति और माध्यम)

3. निम्नलिखित विषयों में से किसी <u>एक</u> विषय पर लगभग 120 शब्दों में रचनात्मक लेख लिखिए: (6X1=6)

(क) मानवता की पहचान करुणा
(ख) लोकतंत्र में मीडिया की भूमिका
(ग) विज्ञापनों से भ्रमित उपभोक्ता

4. निम्नलिखित में से किसी <u>एक</u> विषय पर लगभग 120 शब्दों में औपचारिक पत्र लिखिए: (5X1=5)

आजकल व्यापारी अधिक मुनाफ़ा कमाने के लिए लगभग प्रत्येक वस्तु में मिलावट करने लगे हैं। इसकी शिकायत करते हुए जिला खाद्य अधिकारी को पत्र लिखिए।

अथवा

आप संचित/संचिता, संगमपुर, पंजाब के निवासी हैं। आपके क्षेत्र में चिकित्सा सुविधाओं की कमी है, इस कारण लोगों को बीमारी का इलाज करवाने में समस्या आ रही है। सरकार द्वारा डिस्पेंसरी या अस्पताल खोलने के लिए स्वास्थ्य अधिकारी, पंजाब सरकार को पत्र लिखिए।

5. (i) निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>चार</u> प्रश्नों के लगभग 40 शब्दों में उत्तर लिखिए: (2X4=8)

(क) संचार प्रक्रिया में 'प्राप्तकर्ता' कौन होता है और उसकी क्या भूमिका होती है?
(ख) 'पीत पत्रकारिता' के विषय में संक्षिप्त जानकारी लिखिए।
(ग) "डायरी विस्मृति के अंधेरे में खोते अपने ही व्यक्तित्व के पहलुओं को संरक्षित रखने का माध्यम है।" स्पष्ट कीजिए।
(घ) कंप्यूटर सॉफ्टवेयर और ए.आई. के आने से पटकथा लेखन पर क्या प्रभाव पड़ा है?

(ङ) हिंदी वर्णमाला और शब्दकोश के शब्द क्रम में क्या अंतर होता है?

(ii) निम्नलिखित प्रश्न का उत्तर लगभग 60 शब्दों में लिखिए: **(3X1=3)**

(क) (क) 'स्ववृत्त' से क्या तात्पर्य है और इसके कितने पक्ष होते हैं?

खंड-ग ('आरोह भाग-1' और 'वितान भाग-1' पुस्तकों पर आधारित)

6. निम्नलिखित काव्यांश पर आधारित पूछे गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए: **(1X5=5)**

हे मेरे जूही के फूल जैसे ईश्वर
मँगवाओ मुझसे भीख
और कुछ ऐसा करो
कि भूल जाऊँ अपना घर पूरी तरह
झोली फैलाऊँ और न मिले भीख
कोई हाथ बढ़ाए कुछ देने को
तो वह गिर जाए नीचे
और यदि मैं झुकूँ उसे उठाने
तो कोई कुत्ता आ जाए
और उसे झपटकर छीन ले मुझसे।

(i) कवयित्री ईश्वर से भीख माँगने की इच्छा क्यों व्यक्त करती हैं?

(क) धन प्राप्त करने के लिए
(ख) अहंकार का त्याग करने के लिए
(ग) लोगों की सहानुभूति पाने के लिए
(घ) समाज से बदला लेने के लिए

(ii) 'भूल जाऊँ अपना घर पूरी तरह' पंक्ति किस भाव को व्यक्त करती है?

(क) घर बदलने की इच्छा
(ख) पारिवारिक विवाद
(ग) सांसारिक मोह से विरक्ति
(घ) यात्रा का उत्साह

(iii) कॉलम 1 को कॉलम 2 से सुमेलित कीजिए और सही विकल्प चुनकर लिखिए :

कॉलम 1		कॉलम 2	
(a)	घर भूल जाना	(i)	विनम्रता
(b)	झोली फैलाना	(ii)	वैराग्य
(c)	भीख गिर जाना	(iii)	आत्मसमर्पण
(d)	ईश्वर से प्रार्थना	(iv)	परीक्षा

(क) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

(ख) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

(ग) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)

(घ) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

(iv) कथन और कारण को ध्यानपूर्वक पढ़कर नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त विकल्प चुनकर लिखिए-

कथन (A): कवयित्री ईश्वर से अपना घर भूल जाने का वरदान माँगती हैं।

कारण (R): कवयित्री सांसारिक बंधनों से मुक्त होकर ईश्वर को प्राप्त नहीं करना चाहती हैं।

(क) कथन (A) सही और कारण (R) गलत है।

(ख) कथन (A) गलत और कारण (R) सही है।

(ग) कथन (A) और कारण (R) दोनों सही हैं किंतु कारण (R) कथन (A) की सही व्याख्या नहीं करता है।

(घ) कथन (A) और कारण (R) दोनों सही हैं और कारण (R) कथन (A) की सही व्याख्या करता है।

(v) यदि कवयित्री को बिना कठिनाई के सब कुछ मिल जाता, तो कविता का मूल उद्देश्य सबसे अधिक किस प्रकार प्रभावित होता?

(क) कविता में कवयित्री की भाषा बदल जाती

(ख) आध्यात्मिक संघर्ष का महत्व कम हो जाता

(ग) कविता लिखने का उद्देश्य बदल जाता

(घ) ईश्वर के प्रति आस्था पूर्णत: समाप्त हो जाती

7. निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>दो</u> प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए: (3X2=6)

(क) "अब त बेलि फैलि गयी, आणंद-फल होयी" - पंक्ति में किस 'बेल' और 'फल' की बात की गई है? 'मीरा के पद' के संदर्भ में पंक्ति का भाव स्पष्ट करते हुए उत्तर लिखिए।

(ख) 'घर की याद' कविता में कवि ने जेल में अपनी किस प्रकार की मानसिक स्थिति का उल्लेख किया है? अपने शब्दों में लिखिए।

(ग) 'आओ मिलकर बचाएँ' कविता की पंक्ति "हँसने के लिए थोड़ी-सी खिलखिलाहट, रोने के लिए मुट्ठी भर एकांत" - वर्तमान परिस्थितियों के संदर्भ में कितनी तर्कसंगत प्रतीत होती है? अपने विचार लिखिए।

8. निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>दो प्रश्नों</u> के उत्तर लगभग 40 शब्दों में दीजिए: (2X2=4)

(क) कबीर ने ईश्वर की एकरूपता को सिद्ध करने के लिए मानव-शरीर के निर्माण में प्रयुक्त पंच-तत्त्वों का उल्लेख किया है। 'कबीर के पद' के आधार पर स्पष्ट कीजिए।

(ख) दुष्यंत कुमार राजनीति और सामाजिक व्यवस्था से असंतुष्ट नज़र आते हैं। आपके अनुसार उनकी असंतुष्टि के क्या कारण हैं? 'ग़ज़ल' के आधार पर तर्कसंगत उत्तर लिखिए।

(ग) 'सबसे खतरनाक' कविता में ऐसी कौन-सी स्थितियाँ बताई गई हैं जो बुरी होते हुए भी सबसे खतरनाक नहीं हैं?

9. निम्नलिखित गद्यांश पर आधारित पूछे गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए: (1X5=5)

क्या आँख बंद करके मनमाने हुक्म चलाना और किसी की कुछ न सुनने का नाम ही शासन है? क्या प्रजा की बात पर कभी कान न देना और उसको दबाकर उसकी मर्जी के विरुद्ध ज़िद से सब काम किए चले जाना ही शासन कहलाता है? एक काम तो ऐसा बतलाइए, जिसमें आपने ज़िद छोड़कर प्रजा की बात पर ध्यान दिया हो। कैसर और जार भी घेरने-घोटने से प्रजा की बात सुन लेते हैं पर आप एक मौका तो बताइए, जिसमें किसी अनुरोध या प्रार्थना सुनने के लिए प्रजा के लोगों को आपने अपने निकट फटकने दिया हो और उनकी बात सुनी हो ।

नादिरशाह ने जब दिल्ली में कत्लेआम किया तो आसिफजाह के तलवार गले में डालकर प्रार्थना करने पर उसने कत्लेआम उसी दम रोक दिया। पर आठ करोड़ प्रजा के गिड़गिड़ाकर विच्छेद न करने की प्रार्थना पर आपने ज़रा भी ध्यान नहीं दिया। इस समय आपकी शासन-अवधि पूरी हो गई है, तथापि बंग-विच्छेद किए बिना घर जाना आपको पसंद नहीं है ! नादिर से भी बढ़कर आपकी ज़िद है। क्या समझते हैं कि आपकी ज़िद से प्रजा के जी में दुःख नहीं होता?

आप विचारिए, तो एक आदमी को आपके कहने पर पद न देने से आप नौकरी छोड़े जाते हैं, इस देश की प्रजा की भी यदि कहीं जाने की जगह होती, तो क्या वह नाराज़ होकर इस देश को छोड़ न जाती?

(i) निम्नलिखित में से कौन-सा कथन लेखक की लोकतांत्रिक शासन-व्यवस्था संबंधी अवधारणा को सबसे अधिक व्यक्त करता है?

(क) शासन का आधार केवल कुशल एवं कठोर प्रशासनिक दक्षता होना चाहिए।

(ख) शासन की सफलता जनता की सहभागिता और उसकी भावनाओं के सम्मान पर निर्भर करती है।

(ग) लोकतांत्रिक शासन-व्यवस्था में दृढ़ता और कठोरता ही अनुशासन बनाए रखती है।

(घ) किसी भी शासन-प्रणाली में जनता की अपेक्षा शासक की प्रतिष्ठा अधिक महत्वपूर्ण होती है।

(ii) निम्नलिखित में से कौन-सा विकल्प गद्यांश में निहित व्यंग्य का सबसे सटीक विश्लेषण प्रस्तुत करता है?

(क) लेखक ने शासक की हठधर्मिता, प्रशासनिक कुशलता और वीरता की प्रशंसा की है।

(ख) लेखक ने शासक की प्रशंसा के माध्यम से उसकी शासन नीति का समर्थन किया है।

(ग) लेखक ने शासक की प्रशंसा के माध्यम से उसकी हठधर्मिता एवं जनविरोधी नीति का विरोध किया है।

(घ) लेखक ने केवल बंग-विच्छेद का ऐतिहासिक विवरण प्रस्तुत किया है।

(iii) निम्नलिखित में से कौन-सा/से कथन गद्यांश के विचारों का सर्वाधिक उचित निष्कर्ष है/हैं?

I. जनता की अनदेखी शासन को अलोकप्रिय बनाती है।

II. शासन में संवाद आवश्यक है।

III. ज़िद्दी निर्णय जनता के विश्वास को कम करते हैं।

IV. विद्रोह से शासन मज़बूत बनता है|

गद्यांश के अनुसार कौन-सा/से कथन सही है/हैं -

(क) कथन I और III सही हैं|

(ख) कथन II और IV सही हैं|

(ग) केवल कथन I सही है|

(घ) कथन I, II और III सही हैं।

(iv) लेखक ने नादिरशाह का उदाहरण देकर किस विरोधाभास को स्पष्ट किया है?

(क) विदेशी और भारतीय संस्कृति का अंतर

(ख) क्रूर शासक भी कभी-कभी दया दिखा सकता है

(ग) अंग्रेज़ी शासन-व्यवस्था में युद्ध और शांति का अंतर

(घ) दिल्ली और बंगाल के शासन का अंतर

(v) कथन और कारण को ध्यानपूर्वक पढ़कर नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त विकल्प चुनकर लिखिए-

कथन (A): लेखक ने शासक की तुलना नादिरशाह से भी अधिक हठी शासक के रूप में की है।

कारण (R): नादिरशाह ने एक अनुरोध पर नरसंहार रोक दिया, जबकि वर्तमान शासक ने करोड़ों लोगों की प्रार्थना की भी उपेक्षा की।

(क) कथन (A) और कारण (R) दोनों ही गलत हैं।

(ख) कथन (A) गलत है और कारण (R) सही है।

(ग) कथन (A) और कारण (R) दोनों सही हैं तथा कारण (R), कथन (A) की सही व्याख्या करता है।

(घ) कथन (A) और कारण (R) दोनों सही हैं, किंतु कारण (R) कथन (A) की सही व्याख्या नहीं करता है।

10. निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>दो</u> प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए: (3x2=6)

(क) 'हम तो अख़बार बनाने वाले और अख़बार पढ़ने वाले- दोनों को ही निठल्ला समझते हैं।' - मियाँ नसीरुद्दीन का यह कथन अखबार और पत्रकारिता के प्रति उनके किस दृष्टिकोण को दर्शाता है? क्या आप उनके इस विचार से सहमत हैं? तर्क सहित उत्तर लिखिए।

(ख) 'फ़िल्म-निर्माण का काम किसी तपस्या से कम नहीं है|' 'अपू के साथ ढाई साल' पाठ के आधार पर इस कथन को सिद्ध कीजिए।

(ग) "गलती करने वाला तो है ही गुनहगार, पर उसे बर्दाश्त करने वाला भी कम गुनहगार नहीं होता|" - 'रजनी' पाठ का यह कथन किस संदर्भ में कहा गया है? आप किसे और क्यों गुनहगार मानते हैं?

11. निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>दो</u> प्रश्नों के उत्तर लगभग 40 शब्दों में दीजिए:- (2X2=4)

(क) "दुनिया सोती थी, पर दुनिया की जीभ जागती थी। सवेरे देखिए तो बालक-वृद्ध सबके मुँह से यही बात सुनाई देती थी|" इस कथन से आप क्या समझते हैं? 'नमक का दारोगा' पाठ के आधार पर कथन की विवेचना कीजिए।

(ख) 'गलता लोहा' कहानी का कोई अन्य अंत अपने शब्दों में लिखिए।

(ग) किसान 'भारत माता' का क्या अर्थ लेते थे और भारत माता के प्रति नेहरू जी की क्या अवधारणा थी?

12. निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर किन्हीं <u>दो</u> प्रश्नों के उत्तर लगभग 100 शब्दों में दीजिए: (5X2=10)

(क) 'लता मंगेशकर के गायन की निर्मलता ने फ़िल्मी संगीत को जन-जन की आत्मा की आवाज़ बना दिया|' इस कथन के आधार पर स्पष्ट कीजिए कि लता जी ने अपने गायन के किन गुणों के आधार पर लोगों के दिलों में संगीत के प्रति प्रेम जगाया? सामान्य जीवन में संगीत किस प्रकार आत्मा की आवाज़ बन जाता है?

(ख) "यहाँ बिखरे रहने में ही संगठन है। मरुभूमि में रेत के कण समान रूप से बिखरे रहते हैं। यहाँ परस्पर लगाव नहीं, इसलिए अलगाव भी नहीं होता।" 'राजस्थान की रजत बूँदें' पाठ में वर्णित रेत की यह विशेषता भूमि के नीचे जल-संचय में किस प्रकार सहायक होती है? यह कथन वैज्ञानिक आधार के साथ-साथ हमें क्या जीवन-संदेश देता प्रतीत होता है? पाठ के आधार पर अपने विचार लिखिए।

(ग) 'आलो आँधारि' पाठ में तातुश और उनका परिवार बेबी हालदार के जीवन-संघर्ष में अहम भूमिका निभाते हैं। आपके विचार में उनका योगदान कितना महत्वपूर्ण है? कल्पना कीजिए यदि तातुश बेबी के जीवन में न आए होते तो बेबी की स्थिति क्या होती? अपने शब्दों में लिखिए।

Class: XI
PHYSICAL EDUCATION

Time: 03 Hours **SAMPLE PAPER** – 2026-27 Maximum Marks: 70

General instructions:

- The questions paper consists of 5 sections and 37 questions.
- Section A consists of questions 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.
- Section B consists of questions 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
- Section C consists of questions 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
- Section D consists of questions 31-33 carrying 4 marks each and are case studies. There are internal choices available.
- Section E consists of questions 34-37 carrying 5 marks each and are long answer types and should not exceed 200-300 words. Attempt any 3.

Section A

1) The Sports Authority of India (SAI) was established in: (1)
   a) 1982 b) 1984
   c) 1986 d) 1990
2) Which among the following career option in physical education involves managing sports facilities such as gym, stadium and sports complexes? (1)
   a) Sports Psychology b) Sports Facilities Manager
   c) Sports Nutritionist d) Strength and Conditioning coach
3) Heling others to feel safe from violence is an example of which of following Olympic value? (1)
   a) Friendship b) Respect
   c) Excellence d) Trust
4) The updated Olympic motto was officially adopted before which Olympic Games? (1)
   a) Rio 2016 b) Tokyo 2020
   c) Paris 2024 d) London 2012
5) Identify the kriya from picture given? (1)

   a) Dhand Dhauti b) Vastra Dhauti
   c) Vamana Dhauti d) Bhasti kriya
6) Match List – I with List – II and select the correct answer from the code given below:

List – I		List – II	
(i)	Purka	1	Exhalation of air from the lungs
(ii)	Rechaka	2	Inhalation of air into the lungs
(iii)	Kumbaka	3	Retention of breath
(iv)	Pratyahara	4	Detaching the mind and sense organs from the related activity.

CODES				
	I	**ii**	**iii**	**Iv**
a)	1	3	2	4
b)	4	3	2	1
c)	2	1	3	4
d)	4	2	1	3

7) Given below are the two statements labeled Assertion (A) and Reason (R): (1)
Assertion (A): A special educator plays an essential role in designing learning experiences for CWSN in inclusive settings.
Reason (R): Special educators provide individualized teaching strategies and classroom modifications.
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 and (R) is false.
d) (A) is false but (R) is true.

8) Identify the professional who can help a CWSN student struggling with daily self-care activities such as dressing and eating. (1)
a) Occupational Therapist b) Speech Therapist
c) Psychologist d) Audiologist

9) The greatest amount of force a muscle or group of muscles can produce in a single effort is known as: (1)
a) Strength Endurance b) Maximum Strength
c) Speed Strength D) Explosive Strength

10) Given below are the two statements labeled Assertion (A) and Reason (R): (1)
Assertion (A): During a nosebleed, the person should lean slightly forward.
Reason (R): Leaning forward prevents blood from entering the throat**.**
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) Both (A) and (R) are false.
d) (A) is false but (R) is true.

11) Vikas is a student whose weight is 60 kg and has a height of 150 cm? (1)
a) 24.7 kg/m² b) 26.7 kg/m²
c) 22.5 kg/m² d) 25.5 kg/m²

12) The athlete who has a greater dominance of slow twitch fibre is? (1)
a) Sprinter b) Thrower
c) Long Distance runner d) Jumper

13) During a high-intensity workout, an athlete begins to experience muscle fatigue and discomfort. Which substance is primarily responsible for this condition? (1)
a) Glucose b) Lactic acid
c) Oxygen d) Glycogen

14) The movement of a body part towards the reference axis is called: (1)
a) Abduction b) Adduction
c) Flexion d) Rotation

15) Which biomechanical principle helps in understanding how an athlete can achieve maximum distance in a jump? (1)
a) Principle of force b) Principle of leverage
c) Principle of angular motion d) Principle of projection

16) A team has skilled players, but they fail to achieve good results because players do not support or cooperate with each other during matches. Which factor is affecting their performance? (1)

a) Lack of team cohesion
b) Lack of strength
c) Lack of flexibility
d) D) Lack of speed

17) To achieve peak performance in competition, an athlete should follow training that is: (1)

a) Scientific and systematic
b) Based only on luck
c) Done only before competitions
d) Different every day without planning

18) Which organization publishes the list of prohibited substances in sports? (1)

a) FIFA
b) BCCI
c) IOC
d) WADA

Section B

(Attempt any five questions)

19) List any two features of running shoes that make them suitable for running. (1+1)

20) List any two Olympic value that encourage peace and unity among nations. (1+1)

21) A student with a physical disability cannot perform a basketball drill. What two adaptations will the teacher make? (1+1)

22) What is meant by leadership? Mention any four leadership qualities that can be developed through Physical Education. . (1+1)

23) Differentiate between tendon and ligament with one example each. (1+1)

24) A discus thrower rotates his body before releasing the discus. Name the axis around which this movement occurs. (1+1)

Section C

(Attempt any five questions)

25) State any three functions of the International Olympic Committee (IOC) related to the organisation of the Olympic Games. (1 x 3)

26) Neeraj, a male javelin throw athlete, underwent a body composition assessment. During the assessment, his waist circumference was recorded as 84 cm and hip circumference was recorded as 96 cm. Calculate his Waist-Hip Ratio (WHR). (3)

27) Explain the challenges faced by an athlete with an endomorph body type in sports with a suitable example. (1 x 3)

28) Joints can be classified on the basis of their structure. Explain the classification with suitable examples. (1 x 3)

29) An athlete performs well in practice but poorly during competitions. Which psychological attributes may be responsible? Explain with suitable reasons. (1 x 3)

30) Despite following a training schedule, an athlete is unable to achieve better results. Analyze how the principles of Overload, Variation, and Individualization can improve performance. (1 x 3)

Section D

(Internal Choices Available)

Q31.Priya is a student with a locomotor disability. During sports activities, her classmates ask before helping her, speak respectfully, and do not move her wheelchair without permission. The Physical Education teacher modifies the game so that Priya can participate equally.

Q1. The classmates are following: 1

a) Sportsmanship
b) Disability Etiquette
c) Recreation
d) D) Competition

Q2. The teacher has modified the game. This is called: 1

a) Inclusive Education
b) Adapted Physical Education
c) Yoga
d) Athletics

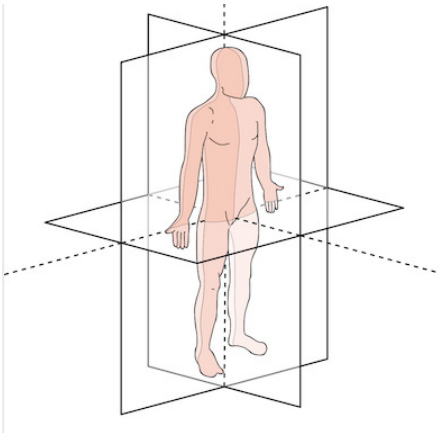
Q3. What is the main purpose of Disability Etiquette? 1
a) To treat CWSN with respect and dignity
b) To keep them separate
c) To reduce participation
d) To increase competition only

Q4. Before helping a person using a wheelchair, you should: 1
a) Push the wheelchair immediately
b) Ask for permission first
d) Ignore the person
d) Call someone else

Or

Modifying sports activities according to the needs of CWSN helps to: 1
a) Exclude them from sports
b) Reduce confidence
c) Promote equal participation
d) Increase unfair competition

32) Based on the picture below answer the following question



Q1. A sprinter moves the legs forward and backward while running. These movements mainly occur in which plane? 1
a) Frontal plane
b) Sagittal plane
c) Horizontal plane
d) Transverse plane

Q2.A gymnast performs a cartwheel. The movement mainly takes place in the: 1
a) Sagittal plane
b) Frontal plane
c) Horizontal plane
d) Vertical plane

Q3.A discus thrower rotates the body before releasing the discus. This movement mainly occurs in the: 1
a) Sagittal plane
b) Frontal plane
c) Horizontal (Transverse) plane
d) Coronal plane

Q4. A hockey player swings the stick by rotating the upper body. This movement mainly takes place in the: 1
a) Sagittal plane
b) Frontal plane
c) Vertical plane
d) Horizontal (Transverse) plane

33) **Sarvesh Kushare**, an Indian **high jumper**, secured a third-place finish at world-level athletics meet. His achievement was the result of years of scientific training, discipline, proper nutrition, and adherence to fair play. Throughout his career, he focused on improving his performance through hard work and avoided the use of prohibited performance-enhancing substances. His success demonstrates that international achievements can be earned through dedication and ethical sports practices.

Q1. Sarvesh Kushare's achievement mainly reflects: 1
a) Doping
b) Scientific sports training

c) Luck d) Recreation

Q2. The use of prohibited substances to improve sports performance is known as: 1

a) Rehabilitation **b) Doping**

c) Warm-up d) Conditioning

Q3. Which value is best demonstrated by Sarvesh Kushare's approach to sports? 1

a) Fair play b) Cheating

c) Negligence d) Aggression

Q4. To improve his jumping ability, the coach gradually increases the intensity of Sarvesh's training. This follows the principle of: 1

a**) Progressive overload** b) Reversibility

c) Recovery d) Variety

Or

Sarvesh gets enough sleep after intense training sessions. The main purpose is to:

a) Promote recovery b) Increase fatigue

c) Reduce flexibility d) Avoid practice

Section E

(Attempt any three questions)

34) Recall the name of any five professionals involved in sports media and Communication (1 x 5)

35) Frequent heat waves and changing weather conditions due to climate change have reduced your friend's energy levels and affected her overall well-being. As a student of Physical Education, suggest a suitable yogic practice (Pranayama) that can help improve her health and explain its benefits. (2.5+2.5)

36) Many students in your school prefer online games over traditional and regional games. As the Sports Captain, what steps would you take to encourage participation in traditional and regional games? Explain their importance in today's lifestyle. (1 x 5)

37) How do psychological principles apply to different areas of life, as education, and personal relationships? (2.5+2.5)

MARKING SCHEME
Physical Education
Class XI (2026-27)

Note: Any other relevant answer, not given here but given by the candidates, should be awarded accordingly.

Q.N	Answer Key	ALLOTTED MARKS	TOTAL MARKS
Section A: MCQs (1-18)			
1	b) 1984	1	1
2	b) Sports Facilities Manager	1	1
3	b) Respect	1	1
4	b) Tokyo 2020	1	1
5	b) Vastra Dhauti	1	1
6	c) 2-1-3-4	1	1
7	a) Both (A) and (R) are true and (R) is the correct explanation of (A).	1	1
8	a) Occupational Therapist	1	1
9	b) Maximum Strength	1	1
10	**a)** Both (A) and (R) are true and (R) is the correct explanation of (A).	1	1
11	b) 26.7 kg/m²	1	1
12	c) Long Distance runner	1	1
13	b) Lactic acid	1	1
14	b) Adduction	1	1
15	d) Principle of projection	1	1
16	a) Lack of team cohesion	1	1
17	a) Scientific and systematic	1	1
18	d) WADA	1	1

Section B: Very Short Answers (19-24)			
19	**Any two features of running shoes are:** • **Cushioned sole:** Absorbs shock and reduces the impact on feet and joints while running. • **Lightweight design:** Allows easy movement and improves running speed by reducing fatigue.	2	2
20	**Importance of Olympic Values in Encouraging Peace and Unity Among Nations:** • **Promotes friendship and mutual respect** among athletes from different countries, cultures, and backgrounds. • **Encourages fair play and equality**, fostering harmony and reducing discrimination. • **Strengthens international cooperation and peace** by bringing nations together through sports and promoting understanding beyond political or cultural differences.	½ x 4	2
21	**Any two adaptations the teacher can make are:** • **Modify the activity or rules** according to the student's ability, such as reducing the distance, allowing extra time, or using a simplified drill. • **Provide adapted equipment**, such as a lighter basketball, lower basketball hoop, or assistive devices (e.g., wheelchair) to enable participation. **Other acceptable adaptations:** • Pair the student with a peer/helper for support. • Ensure a safe and accessible playing area. • Allow the student to perform an alternative but equivalent activity.	**1 x 2**	**2**
22	**Physical Education helps in developing leadership qualities by:** • Providing opportunities to lead teams, organise activities, and make decisions during sports and games. • Encouraging responsibility, cooperation, and effective communication while working with teammates. **Any two leadership qualities developed through Physical Education:** • **Decision-making:** Ability to make quick and effective decisions during games and competitions. • **Responsibility:** Taking accountability for team performance, discipline, and assigned tasks. **Other acceptable leadership qualities:** • Self-confidence • Communication skills • Teamwork • Problem-solving • Motivation • Discipline	**2**	**2**

23	**Tendon:** Connects a **muscle to a bone** and helps in movement. **Example: Achilles tendon**. **Ligament:** Connects one **bone to another bone** and provides stability to the joint. **Example: Anterior Cruciate Ligament (ACL)** of the knee.	2	2
24	**Axis: Longitudinal (Vertical) Axis** **Reason:** The body rotates around the **longitudinal (vertical) axis** during the discus throw before releasing the discus.	**2**	**2**
Section C: Short Answers (25-30)			
25	**Any three functions of the International Olympic Committee (IOC):** • **Selects and supervises the host city:** Ensures that the host country makes proper arrangements and conducts the Olympic Games according to Olympic standards. • **Promotes and protects Olympic values:** Encourages fair play, friendship, excellence, and respect throughout the Games. • **Coordinates with National Olympic Committees (NOCs) and International Federations (IFs):** Ensures smooth organisation, proper implementation of rules, and successful conduct of competitions.	3	3
26	**Formula:** **Formula:** Waist-Hip Ratio (WHR)= Waist Circumference / Hip Circumference **Calculation:** • Waist Circumference = **84 cm** • Hip Circumference = **96 cm** • WHR = **84 ÷ 96 = 0.875** **Answer:** • **Waist-Hip Ratio (WHR) = 0.875 (≈ 0.88)**	**1 x 3**	**3**
27	**Challenges faced by an athlete with an endomorph body type:** • **Higher body fat** may reduce speed and agility, making quick movements difficult. • **Greater body weight** can lower endurance and increase fatigue during prolonged physical activity. • **Needs regular training and a balanced diet** to maintain an ideal body composition and improve performance. **Example:** • An **endomorph athlete** may face difficulty in events such as the **100 m sprint**, where speed and agility are essential.	**1+1+1**	**3**

28	**Joints can be categorized based on how they move as follows:** • **Immovable (Fibrous) Joints:** These joints do not allow any movement. *Example:* Joints between the bones of the skull. • **Slightly Movable (Cartilaginous) Joints:** These joints allow limited movement. *Example:* Joints between the vertebrae of the spine. • **Freely Movable (Synovial) Joints:** These joints allow a wide range of movements. *Example:* Shoulder joint, knee joint, or hip joint.	**1 X 3**	**3**
29	**Psychological attributes that may be responsible are:** • **Lack of self-confidence:** The athlete may doubt their abilities during competition, leading to poor performance. • **High anxiety or stress:** Excessive nervousness before or during competition can reduce concentration and affect decision-making. • **Poor concentration:** The athlete may get distracted by the audience, opponents, or pressure, resulting in mistakes and reduced performance.	**1 X 3**	**3**
30	**The athlete can improve performance by applying the following training principles:** • **Overload:** Gradually increase the intensity, duration, or frequency of training to stimulate improvement and enhance fitness. • **Variation:** Introduce different training methods and exercises to prevent boredom, avoid plateaus, and maintain motivation. • **Individualization:** Design the training programme according to the athlete's age, fitness level, abilities, and specific needs for better results.	**1 x 3**	**3**
Section D: Case Studies (31-33)			
31.1	b) Disability Etiquette	1	1
31.2	b) Adapted Physical Education	1	1
31.3	a) To treat CWSN with respect and dignity	1	1
31.4	b) Ask for permission first or c) Promote equal participation	1	1
32.1	b) Sagittal plane	1	1

32.2	b) Frontal plane	1	1
32.3	c) Horizontal (Transverse) plane	1	1
32.4	d) Horizontal (Transverse) plane	1	1
33.1	b) Scientific sports training	1	1
33.2	b) Doping	1	1
33.3	a) Fair play	1	1
33.4	a) Progressive overload or a) Promote recovery	1	1
Section E: Long Answers (34-37)			
34	**Roles of any five professionals in the field of Communication in Physical Education:** • **Sports Journalist:** Reports sports news, covers events, conducts interviews, and writes articles to keep the public informed. • **Sports Commentator:** Provides live commentary during sports events, explains the action, and keeps the audience engaged. • **Sports Photographer:** Captures important moments of sporting events for newspapers, magazines, websites, and social media. • **Sports Broadcaster/Anchor:** Presents sports news, hosts sports programmes, and analyses matches on television, radio, or digital platforms. • **Sports Blogger/Content Creator:** Creates articles, videos, podcasts, and social media content to promote sports, athletes, and fitness awareness. **Other acceptable answers:** Sports Editor, Public Relations Officer (PRO), Social Media Manager, Sports Analyst, Sports Marketing Executive.	**1 x 5**	**5**
35	**Suggested Pranayama: Sheetali Pranayama** **Benefits:** • **Cools the body** by helping regulate body temperature during heat waves. • **Reduces fatigue and tiredness**, improving overall energy levels. • **Relieves stress and mental exhaustion**, promoting relaxation and emotional well-being.	1 x 5	5

	• **Improves concentration and mental freshness**, helping the person stay active despite hot weather. • **Enhances overall health** by refreshing the body and improving the body's ability to cope with extreme heat.		
36	**Steps to encourage participation in traditional and regional games:** • **Organise inter-house competitions and sports festivals** featuring traditional and regional games. • **Demonstrate and teach the rules** of these games during Physical Education classes. • **Conduct awareness campaigns** highlighting the benefits and cultural significance of traditional games. • **Provide proper equipment and facilities** to encourage regular participation. • **Reward and recognise students** who actively participate and perform well in these games. **Importance of traditional and regional games in today's lifestyle:** • **Promote physical fitness** by improving strength, agility, coordination, and endurance. • **Preserve cultural heritage** and pass traditional values to younger generations. • **Develop teamwork, discipline, and social interaction** among students. • **Reduce screen time** and encourage an active, healthy lifestyle. • **Provide low-cost recreational activities** that can be played with minimal equipment.	5	5
37	**Psychological principles are applied in different areas of life in the following ways:** **In Education** • Help teachers understand students' learning abilities, interests, and individual differences. • Improve students' motivation, concentration, and academic performance. • Assist in effective classroom management and guidance. **In Personal Relationships** • Promote empathy and understanding of others' feelings and behaviour. • Improve communication and interpersonal skills. • Help resolve conflicts peacefully and build healthy relationships. **Overall Benefits** • Help individuals manage stress and emotions effectively. • Enhance self-awareness, decision-making, and overall mental well-being.	2.5 + 2.5	5

Sample Question Paper 2026-2027

Class : XI

Subject: Computer Science(083)

Max Time:3 Hours Maximum Marks:70

General Instructions:

1. This question paper contains five sections, Sections A to E.
2. All questions of a particular section must be attempted in the correct order.
3. SECTION A has 21 Objective Type Questions of 1 mark each.
4. SECTION B has 07 Very Short Answer Type Questions carrying 02 marks each.
5. SECTION C has 04 Short Answer Type Questions carrying 03 marks each.
6. SECTION D has 02 Questions carrying 04 marks each.
7. SECTION E has 03 Questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only

Section A		
1.	A computer needs to temporarily store data and instructions that the CPU is currently processing. Which of the following components is used for this purpose? a. Hard Disk Drive b. USB Flash Drive c. Compact Disc d. RAM	1
2.	Which system utility is most suitable for creating a copy of important data so that it can be restored after data loss? a. Disk Defragmenter b. Disk Cleanup c. Backup Utility d. File Explorer	1

3.	Consider the following code:
	for i in range(1, 4):
	for j in range(1, 4):
	if i == j:
	continue
	print(i, j)
	How many pairs will be printed?
	a. 3
	b. 6
	c. 9
	d. 12
		1

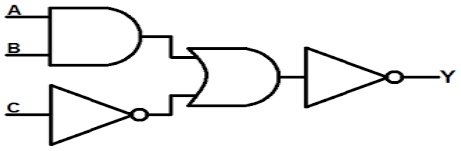
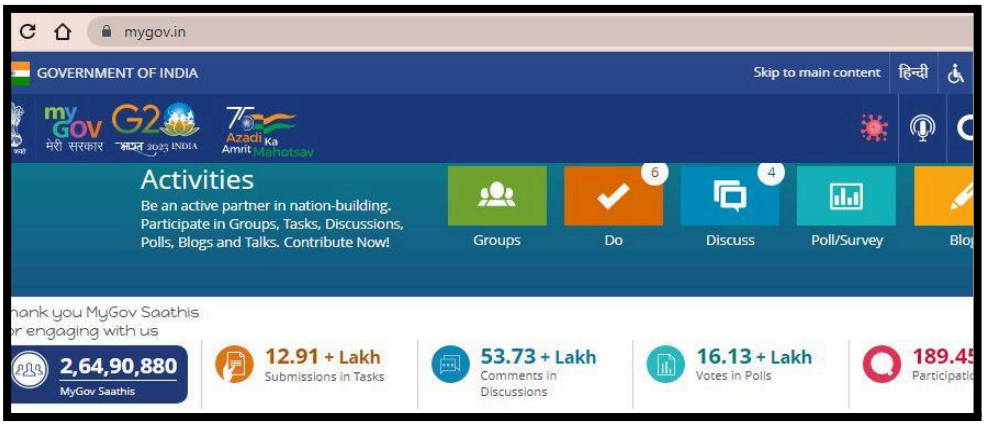
4.	A student downloads a Python package that allows free use, modification, and redistribution. However, if he distributes the modified version, he must also provide the source code under the same license.Which type of license does the package most likely have? a. Freeware License b. GNU General Public License (GPL) c. Proprietary License d. Shareware License	1
5.	Riya wants to explain the purpose of a function without affecting the execution of her Python program. What should she use? a. Variable b. Print statement c. Comment d. Input statement	1
6.	Consider the following Python code: marks = [85, 90, 78] print(marks[5]) The above code results in: a. Syntax Error b. Logical Error c. Runtime Error d. None of the above.	1
7.	A programmer wants to store English text efficiently while still allowing users to enter emojis and characters from other languages without changing the encoding format. Which encoding best satisfies this requirement? a. ASCII b. ISCII c. UTF-32 d. UTF-8	1

8.	What is the output of the following code?
	count = 1
	while count < 10:
	print(count, end=" ")
	count *= 2
	else:
	print("Finished")
	a. 1 2 4 8 Finished
	b. 1 2 4 8 16 Finished
	c. 2 4 8 Finished
	d. 1 2 4 Finished
		1

9.	Consider the following Python statement: z = 6 + 8j What is the data type of z? a. int b. float c. str d. complex	1
10.	Consider the following code: s = "Python" print(s * 2 + "3") What is the output? a. PythonPython3 b. Python6 c. Python23 d. Error	1
11.	What will be the output of the following code? L = [10, 20, 30] T = (40, 50) L.extend((T,L.pop())) print(L) a. [10, 20, 30, (40, 50)] b. (10, 20, 30, 40, 50) c. [10, 20, (40, 50), 30] d. Error	1
12.	What is the output of the following code? D = {"b": 2, "a": 1, "c": 3} print(sorted(D)) a. [2, 1, 3] b. {'a':1,'b':2,'c':3} c. ['a', 'b', 'c'] d. [('a',1), ('b',2), ('c',3)]	1
13.	A teacher wants a program to skip only the absent students while continuing to process the attendance of the remaining students. A loop is implemented to mark “P” for students who are present, skipping the absent students. Which Python statement is most suitable to implement the above mentioned scenario? a. break b. continue c. pass d. exit	1

14.	What will be the output of the following code? s = "Python" print(s.partition("z")) a. Error b. (, ','Python') c. ('Python', '', '') d. ('', 'z', 'Python')	1
15.	What will be the output of the following code? import statistics L = [4, 6, 8, 10] print(statistics.median(L)) a. 6 b. 8 c. 7.0 d. 7	1
16.	A school plans to set up a new computer lab. Which measure will make the lab more accessible for students with visual impairments? a. Installing high-resolution games b. Using faster processors c. Providing screen reader software d. Increasing the number of keyboards	1
17.	A student creates a fake social media account using someone else's identity. This act is an example of: a. Cyber crime b. Data backup c. Cloud computing d. E-learning	1
18.	Which of the following is correctly matched? a. Patent – Protects books and songs b. Trademark – Protects inventions c. Patent – Protects new inventions d. Copyright – Protects company logos	1
19.	Which of the following is NOT usually considered part of a person's digital footprint? a. Online shopping history b. Social media posts c. Search engine queries d. Files stored only on an offline computer with no Internet access	1

	Q20 and 21 are ASSERTION AND REASONING based questions. Make 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): The get() method can retrieve the value of a key without raising an error if the key is absent. Reason (R): get() returns value 1 when the key is not found.	1
21.	Assertion (A): An interpreter translates and executes one statement at a time. Reason (R): An interpreter usually takes less time to start program execution than a compiler.	1

Section B		
22	Write the Logical expression of the given logic diagram.  	2
23.	Convert the following: a) $(86)_{10}=(?)_8$ b) $(FCA)_{16} = (?)_2$	2
24.	Write any two characteristics of Indian Standard Code for Information Interchange. OR Observe the following image:  While exploring the portal mygov.in Rohit found that there is an option Hindi to see the website in Hindi language. Write the two encoding schemes which facilitate the text of the web pages to be displayed in Hindi Language.	2
25.	Observe the following Python code and find the possible output from the possible output(s) from options (a) to (d). Also, write the minimum value that can be	2

	possibly assigned to variable p and maximum value that can be possibly assigned to variable y. import random skill_subjects = ("AI", "IT", "WD", "TG", "DT") p = random.randint(0, 2) q = random.randint(1, 4) for i in range(p, q): print(skill_subjects[i], end="@") a. AI@ b. DT@TG@WD@ c. WD@AI@ d. DT@IT@	
26.	Write the output of the following code: my_tuple = (1, 2, [3, 4]) my_tuple[2].append(5) print(my_tuple)	2
27.	Differentiate between phishing and fraud email. OR Differentiate between cyber troll and cyber bullying.	2

28.	Rahul has written a code to accept a number and find its square if the number is positive otherwise it should calculate the square root of the number entered. The program is showing error on execution .Observe the code and rewrite it after removing errors:
	num=input("Enter a no.")
	if num >1:
	sroot=num**0.5
	print("number is positive and square root is " ; sroot)
	else
	sq=num***2
	print("Number is negative and its square is ",sq)
		2

SECTION C		
29.	Draw a flowchart to print the factorial of a given number .	3
30.	Write the output of the following code: d={} k=[10,'a',20,'b',30,'c',40,'d',50,'e'] n=len(k) i=0 while i<n-1: d[k[i]] = k[i+1] i=i+2 print(d)	3

31.	Kriti, a Class XI Computer Science student, developed a unique library management desktop application using Python and named it “LibTrack” . She also designed a logo featuring a book. To ensure no one could copy her exact programming code, she registered her software with the government. However, she wanted to share her source code online so that other students could modify, reuse, and learn from it freely, provided they also share their modifications under the exact same terms. a. Which type of Intellectual Property Right (IPR) automatically protects Kriti's original Python source code and user manual from being copied without permission? b. What form of IPR should Kriti register to legally protect the unique brand name "LibTrack" and the logo? c. Which category of software licensing should Kriti use if she wants her source code to be publicly available, editable, and free for everyone?	3

32.	Predict the error of the following code:-
	s = "Today is Computer Science exam 083"
	x = s.split()
	for w in x:
	  if len(w) >5:
	  print(w[0],end="#")
	  else:
	  print(w[-1], end="@")
		1+2=3

Section D		
33.	Give output for the following: info = dict.fromkeys(["Red", "Blue"], []) info["Blue"].append(25) print(info) print(info.get("Green", -1)) print(info.setdefault("Yellow", [50])) info["Yellow"].append(75) print(info)	4
34.	Write a program that accepts a password from the user and validates it using the following rules: The length must be between 10 and 15 characters. It must contain at least 2 uppercase letters. It must contain at least 3 digits. It must contain exactly one special character from @, #, $, %. It must not contain any spaces. The first character must be an alphabet. The last character must be a digit. Print "Strong Password" if all conditions are satisfied; otherwise print "Invalid Password" Sample Password: AbCD123@45	4

Section E		
35.	An online shopping company stores the available stock of products in a dictionary, where the key is the product name and the value is the quantity available. stock = { "Laptop": 12, “Mouse": 35, "Keyboard": 20, "Monitor": 8, "Headphones": 15 } Answer the following questions: (a) A customer purchases 3 Laptops and 6 keyboards from the company . Update the dictionary accordingly. (b) Check whether Printer is available in the inventory. Display "Available" if present; otherwise display "Not Available". (c) Write Python statement to display the names of all products whose stock is less than 15. (d) The company decides to discontinue Headphones. Remove this product from the dictionary. (e) Display the total number of products currently in the dictionary.	4+1=5
36.	A school maintains a record of some major international sporting events in a tuple. Each element of the tuple stores: (Event Name, Year, Host Country, Sport) events = (("Olympics", 2024, "France", "Multi-sport"), ("T20 World Cup", 2024, "West Indies", "Cricket"), ("Women's Cricket World Cup", 2025, "India", "Cricket"), ("FIFA World Cup", 2026, "USA", "Football"), ("Asian Games", 2026, "Japan", "Multi-sport")) a) Write Python statements to display the names of all Cricket events. b) Write Python statements to create a tuple containing only the host countries of all events and display it. c) Display the host countries in alphabetical order. d) Predict the output: print(len(events)) print(len(events[2])) e) Predict the output. print(events.index(("Asian Games", 2026, "Japan", "Multi-sport"))) OR A food delivery app stores customer order details in a nested list. Each inner list contains: [Customer Name, Order ID, (Food Item, Quantity), Order Status] orders = [["Aman", 101, ("Pizza", 2), "Delivered"], ["Neha", 102, ("Burger", 1), "Pending"], ["Rohan", 103, ("Pasta", 3), "Delivered"], ["Simran", 104, ("Pizza", 1), "Cancelled"], ["Vikas", 105, ("Sandwich", 2), "Delivered"]] Answer the following: (a) Write Python statements to display the food item ordered by the customer	1+1+1+1=5 1

<table>
<tr><td></td><td>Neha.
(b) Write Python statements to display the names of all customers whose order status is "Delivered".
(c) Write Python statements to create a new list containing the Order IDs of all cancelled orders.
(d) Predict the output of the following code:
<pre>count = 0
for order in orders:
    if order[3] == "Delivered":
        count += 1
print(count)</pre>(e) Predict the output of the following code:
<pre>print(orders[2][2][0])
print(orders[-1][3])</pre></td><td>1

1

1

1</td></tr>
<tr><td>37.</td><td>Read the case carefully and answer the questions that follow:
Ananya received an email that appeared to be from her bank asking her to verify her account details immediately. The email contained a link that opened a website identical to her bank's login page. She entered her username, password, and OTP. A few hours later, she found that money had been transferred from her account without her permission. On checking her computer, she also noticed that several personal documents had become inaccessible and displayed a message demanding payment to restore them.
a) Identify the type of cyber attack used to steal Ananya's banking credentials.
b) Name the type of malware that made her documents inaccessible and demanded payment to restore them.
c) Explain two warning signs that could have helped Ananya identify the fraudulent email before entering her details.
d) Suggest any two preventive measures Ananya should follow to avoid such cyber attacks in the future.

OR.

Greenwood High School organized a "Clean Green" drive. Students collected broken computer monitors, dead laptop batteries, outdated smartphones, and tangled power cables from their homes. Rohan, a Class XI Computer Science student, noticed that some students were planning to throw old CRT monitors directly into the local community garbage bin. The computer lab teacher intervened and explained that these items contain toxic heavy metals like lead and mercury, which can seep into the soil. She advised the students to hand over the collected items to a government-certified electronic disposal agency instead.

a) What is the technical, collective term used for discarded electrical or electronic devices like the ones collected during the school drive?</td><td>1+1+2+1 =5

1</td></tr>
</table>

	b) Name any one toxic heavy metal found in old computer monitors or electronic components mentioned in the scenario. c) Which category of entities should electronic waste be handed over to for proper, safe, and legal disposal?: d) Explain any two severe environmental or health hazards that can occur if e-waste is dumped directly into open landfills instead of being recycled properly.	1 1 2

Marking Scheme 2026-2026
Class :XI
Subject: Computer Science(083)

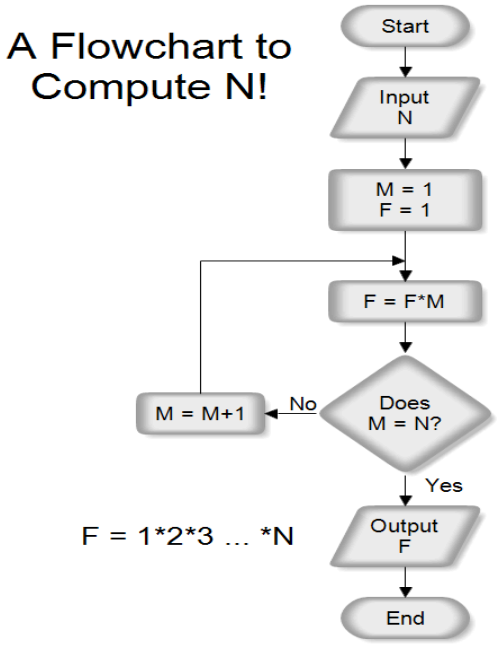
	Section A	Marks
1.	d. RAM	1
2.	c. Backup Utility	1
3.	b. 6	1
4.	a. GNU General Public License (GPL)	1
5.	c. Comment	1
6.	c. Runtime Error	1
7.	d. UTF-8 UTF-32 is not the correct answer because it uses a fixed 4 bytes per character, making it less storage-efficient than UTF-8.	1
8.	a. 1 2 4 8 Finished	1
9.	d. complex	1
10.	a. PythonPython3	1
11.	c. [10, 20, (40, 50), 30]	1
12.	c. ['a', 'b', 'c']	1
13.	b. continue	1
14.	c. ('Python', '', '')	1
15.	c. 7.0	1
16.	c.Providing screen reader software	1
17.	a. Cyber crime	1
18.	c. Patent – Protects new inventions	1
19.	d. Files stored only on an offline computer with no Internet access	1
20	c. A is True but R is False.	1
21.	a. Both A and R are true, and R is the correct explanation of A.	1
	Section B	

22.	(A.B+C')'	1

23.	Convert the following: a) $(86)_{10}=(126)_{8}$ b) $(FCA)_{16} = (111111001010)_{2}$	1 +1=2
24.	- ISCII - UNICODE	2
25.	a. AI@ MIN VALUE OF p = 0 MAX VALUE OF q =4	2
26	(1,2,[3,4,5])	2
27	<u>Phishing</u> 1. The purpose of phishing is to steal passwords, usernames, and security codes. 2. When we click on a link in a phishing message, we will be redirected to a fake website. <u>Fraud Email</u> 1. Fraud emails include fake sender addresses, urgent deadlines. 2. Generic greetings, suspicious links, unexpected attachments, and requests for private information. OR Cyber trolling is the act of deliberately posting inflammatory, offensive, or disruptive messages online to provoke emotional reactions, start arguments, or harass others. Cyberbullying is bullying that takes place over digital devices like cell phones, computers, and tablets. Cyberbullying can occur through SMS, Text, and apps, or online in social media, forums, or gaming where people can view, participate in, or share content.	2

28.	num=int(input("Enter a no."))
	if num==0:
	print (" 0 is neither positive nor negative")
	elif num >0:
	sroot=num**0.5
	print("number is positive and square root is " , sroot)
	else:
	sq=num**2
	print("Number is negative and its square is ", sq)	

	Section C	

29		1+1+1
30	{10: 'a', 20: 'b', 30: 'c', 40: 'd', 50: 'e'}	
31	a. Copyright b. Trademark c. Open Source Software (OSS)	1 1 1
32	y@s@c#s#m@3@	3
	Section D	
33	{'A': [10], 'B': [10]} 0 [20] {'A': [10], 'B': [10], 'C': [20, 30]}	1 1 1 1

34	password = input("Enter Password: ")
	upper = 0
	digit = 0
	special = 0
	for ch in password:
	  if ch.isupper():
	  upper += 1
	  elif ch.isdigit():
	  digit += 1
	  elif ch in "@#$%":
	  special += 1
	if (10 <= len(password) <= 15 and upper >= 2 and digit >= 3 and special == 1 and
	  " " not in password and password[0].isalpha() and password[-1].isdigit()):
	  print("Strong Password")
	else:
	  print("Invalid Password")	

SECTION E		

35	Answer Key
	(a) stock["Laptop"] -= 3
	stock["Keyboard"] -= 6
	(b) if "Printer" in stock:
	print ("Available")
	else:
	print("Not Available")
	(c) for k, v in stock.items():
	if v < 15:
	print(k)
	(d) del stock["Headphones"]
	(e) print("Total products:", len(stock))
		½

36	a) for e in events:
	if e[3] == "Cricket":
	print(e[0])
	b) countries = ()
	for e in events:
	countries += (e[2],)
	print(countries)
	c) countries = ()
	for e in events:
	countries += (e[2],)
	print(tuple(sorted(countries)))
	d) 5
	4
	e) 4
	
	OR
	
	Answer Key
	(a) for order in orders:
	if order[0] == "Neha":
	print(order[2][0])
	
	(b) for order in orders:
	if order[3] == "Delivered":
	print(order[0])
	(c) cancelled_orders = []
	for order in orders:
	if order[3] == "Cancelled":
	cancelled_orders.append(order[1])
	print(cancelled_orders)
	
	(d) 3
	(e) Pasta
	Delivered
		1
		1
		1
		1
		1
		
		1
		1
		1
		1
		1

37	Answer: a) Phishing attack – It is a fraudulent attempt to obtain sensitive information by impersonating a trusted organization through emails, messages, or fake websites. b) Ransomware – It encrypts files or locks the system and demands a ransom to restore access. c) Any two : The sender's email address was suspicious or did not exactly match the official bank's email address. The email created a sense of urgency, asking her to verify her account immediately. The website URL was different from the bank's official website or did not use a secure HTTPS connection. The email asked for confidential information such as passwords or OTPs, which banks never request through email. d) Any two of the following: - Never click on links in suspicious or unsolicited emails; visit the bank's official website directly. - Never share passwords, PINs, or OTPs with anyone through email, messages, or phone calls. - Enable two-factor authentication (2FA) for online banking. - Keep the operating system, browser, and antivirus software updated. OR a) E-Waste b) Lead/Mercury c) Certified E-waste Recyclers d) Any two : - Soil and Groundwater Contamination: Toxic chemicals like lead, mercury, and cadmium leak from the electronic waste, pollute the surrounding soil, and enter the underground water table. - Health Risks to Humans/Animals: If these heavy metals enter the food chain through contaminated water or crops, they can cause severe neurological damage, kidney failure, and respiratory issues in humans and animals	1 1+1+1 ½ + ½ 1+1+1 1+1