1. Why does presence of excess of Lithium makes LiCl Crystals Pink?

2. Why does Frankel defect not change the density of AgCl Crystal?

3. Mention one property which is caused due to F-centre in a solid.

4. Name a salt that can be added to AgCl so as to produce cation vacancies.

5. Why is osmotic pressure considered to be a Colligative property.

6. Differentiate between molarity and molality of a solution.

7. What are the units of molar conductivity?

8. How does molar conductivity of a strong electrolyte vary with its concentration/dilution in solution?

9. What is fuel cell? Give the construction and working of H2-O2 fuel cell.

10. Write the rate expression for the reaction aA \rightarrow \text{Product}.

11. What is meant by elementary reaction?

12. Explain the following terms:
   (i) Order of a reaction
   (ii) Molecularity of a reaction

13. A first order reaction takes 100 minutes for completion of 60% of the reaction. Find the time when 90% of reaction will be completed.

14. Explain the following:
   (i) A lump of coal burns at a moderate rate in air while coal dust burns
explosively.

(ii) Liquid bromine reacts slowly as compared to bromine vapours.

(iii) Wood shaving burn more rapidly than a log of wood.

15. What is a primary cell? Give an example.

16. What is meant by ‘limiting molar conductivity’?

17. What are concentration cells? What is its e.m.f.?

18. Calculate molarity and molality of a 15% solution (by weight) of H2SO4 of density 1.020 g cm-3.

19. On dissolving 3.24 g of sulphur in 40 g of benzene, boiling point of solution was higher than that of benzene by 0.81 K. Kb value for benzene is 2.53 K Kg mol-1. What is molecular formula of sulphur.

20. Why is glass considered a super cooled liquid.

21. Silver forms CCP Lattice. X-Ray studies of its crystals show that edge length of its unit cell is 408.6 pm. Calculate the density of silver.

22. What type of solids are electrical conductors, malleable and ductile.

23. Analysis shows that nickel oxide has formula Ni0.98O1.00. What fraction of nickel exist as Ni2+ and Ni3+ ions.

24. Calculate the e.m.f. of the cell at 25°C

\[ \text{Mg(s)/Mg}^2+(0.10M)\text{//Ag}^+ (0.0001M)/\text{Ag} \] where \( E_{\text{cell}} = 3.17V. \)

25. How many hours does it take to reduce 3 mol of Fe3+ to Fe2+ with 2.00 A current? (R=8.314 JK-1mol-1,F=96500 cmol-1)
D.A.V. PUBLIC SCHOOL, KURUKSHETRA

SUMMER VACATION ASSIGNMENT

CLASS : XII

SUBJECT – ENGLISH

1. Read Novel “The Invisible Man” (Chapter 1 to 10)

2. Co Comprehension passages in BBC 1 To 5 (Pg 3 to Pg 22)

3. Do Note Making in BBC Worksheet 21 to 25.

4. Do all Short Questions/Answers in BBC of all the lessons covered so far.
Questions carrying 1 Mark:

1. What is meant by economising resources?
2. What does a rightward shift of PPC indicate?
3. Define opportunity Cost.
4. When a good is called an “Inferior” good?
5. Define market demand.
6. When is the demand of a commodity said to be inelastic.
7. Define indifference map.
8. Define budget line and budget set.
10. Why the budget line is downward sloping.
11. Give the range of price Ed.
12. What is the shape of unitary elastic demand curve?
13. When does the demand curve shift?
14. Why is demand for water inelastic?
15. Define monotonic preference.
16. State the law of equi-marginal utility.
17. Define Saturation point.
18. Why is PPC concave to the origin?
19. Define marginal rate of transformation?
20. Can PP curve be a straight line?

Questions carrying 3-4 Marks:
1. Explain the central problem of ‘for whom to produce’ with the help of an example.
2. How is PPC affected by Unemployment in an economy? Explain
3. Explain how scarcity and choice go together.
4. How is equilibrium achieved with the help of IC approach.
5. What happens to budget set if both the prices as well as the income double?
6. How does the expenditure method tell us about elasticity of demand?
7. Derive a formula of measuring price-elasticity of demand at a point on a straight line demand curve.
8. What is the relationship between slope and elasticity of a demand curve?
9. Explain the three factors determining price elasticity of demand for a good.
10. Explain the meaning of increasing returns to a factor with the help of TPP schedule and TPP curve.
11. Explain the problem of efficiency in the use of resources.
12. How many units of commodity should a consumer buy to get maximum utility? Explain with the help of numerical example.
1. Define Human Geography.

2. What do you mean by population density.

3. Distinguish between Birth Rate, Death Rate, Growth Rate.

4. What is Sex ratio.

5. What do you mean by Human Development? Explain the determinant of Human Development.

6. Distinguish between Nomadic Herding and Commercial Grazing.

7. Explain the main characteristics of subsistence and plantation agriculture.

8. Describe the various factors which are responsible for localisation of Industry.

9. Distinguish between Regional and Systematic Geography.

10. Describe the Nature and scope of Human Geography.
D.A.V. PUBLIC SCHOOL, KURUKSHETRA

SUMMER VACATION ASSIGNMENT

CLASS : XII

SUBJECT – MATHS

1. If \[
\begin{pmatrix}
x - y & z \\
2x - y & w
\end{pmatrix} = \begin{pmatrix}
-1 & 4 \\
0 & 5
\end{pmatrix}
\]
Find the value of x+y

2. If \[
\begin{vmatrix}
3x & 7 \\
-2 & 4
\end{vmatrix} = \begin{vmatrix}
8 & 7 \\
6 & 4
\end{vmatrix},
\]
Find x.

3. If \[
A^T = \begin{bmatrix}
3 & 4 \\
-1 & 2 \\
0 & 1
\end{bmatrix}
\]
and \[
B = \begin{bmatrix}
-1 & 2 & 1 \\
1 & 2 & 3
\end{bmatrix}
\]
Find \(A^T - B^T\).

4. If A be a square matrix of order 3 X 3. Write the value of |A|, Where |A| = 4.

5. For what value of x, the given matrix \[
A = \begin{bmatrix}
3 - 2x & x + 1 \\
2 & 4
\end{bmatrix}
\]
is a singular matrix?

6. For what value of x, is the matrix \[
A = \begin{bmatrix}
0 & 1 & -2 \\
-1 & 0 & 3 \\
x & -3 & 0
\end{bmatrix}
a skew-symmetric matrix?

7. If matrix \[
A = \begin{bmatrix}
2 & -2 \\
-2 & 2
\end{bmatrix}
\]
and \(A^2 = pA\), Write the value of p.

8. If A is an invertible square matrix of order 3 and \(|A| = 5\), find \(|AdjA|\)

9. What positive value of x makes the following pair of determinants equal ?
\[
\begin{vmatrix}
2x & 3 \\
5 & x
\end{vmatrix} = \begin{vmatrix}
16 & 3 \\
5 & 2
\end{vmatrix}
\]

10. If \[
A = \begin{bmatrix}
cos \alpha & -sin \alpha \\
sin \alpha & cos \alpha
\end{bmatrix}
\]
then for what value of \(\alpha\) is A an identity matrix?

11. Using properties of determinants, prove that

(a) \[
\begin{vmatrix}
a & b & c \\
a^2 & b^2 & c^2 \\
bc & ca & ab
\end{vmatrix} = (a-b)(b-c)(c-a)(ab+bc+ca)
\]
(b) \[
\begin{vmatrix}
  x & x + y & x + 2y \\
  x + 2y & x & x + y \\
  x + y & x + 2y & x
\end{vmatrix} = 9y^2(x+y)
\]

(c) Solve for \(x\)
\[
\begin{vmatrix}
  x - 2 & 2x - 3 & 3x - 4 \\
  x - 4 & 2x - 9 & 3x - 16 \\
  x - 8 & 2x - 27 & 3x - 64
\end{vmatrix} = 0
\]

(d) \[
\begin{vmatrix}
  x + y & x & x \\
  5x + 4y & 4x & 2x \\
  10x + 8y & 8x & 3x
\end{vmatrix} = x^3
\]

(e) \[
\begin{vmatrix}
  (b + c)^2 & a^2 & a^2 \\
  b^2 & (c + a)^2 & b^2 \\
  c^2 & c^2 & (a + b)^2
\end{vmatrix} = 2abc(a+b+c)^3
\]

(f) Solve for \(x\)
\[
\begin{vmatrix}
  x + a & x & x \\
  x & x + a & x \\
  x & x & x + a
\end{vmatrix} = 0
\]

(g) \[
\begin{vmatrix}
  a^2 & bc & ac + c^2 \\
  a^2 + ab & b^2 & ac \\
  ab & b^2 + bc & c^2
\end{vmatrix} = 4a^2b^2c^2
\]

(h) \[
\begin{vmatrix}
  1 & a & a^2 \\
  a^2 & 1 & a \\
  a & a^2 & 1
\end{vmatrix} = (a^3-1)^2
\]

(i) If \(x\neq y\neq z\) and \[
\begin{vmatrix}
  x & x^2 & 1 + x^3 \\
  y & y^2 & 1 + y^3 \\
  z & z^2 & 1 + z^3
\end{vmatrix} = 0
\]

Then prove that \(xyz = -1\)

12. Using matrix, solve the following system of equations
\[
\begin{align*}
X + 2y + z &= 7 \\
X + 3z &= 11 \\
2x - 3y &= 1
\end{align*}
\]

13. Two factories decided to award their employees for three values of (a) adaptable to new techniques (b) careful and alert in difficult situations and (c) keeping calm in tense situations, at the rate of Rs. \(x\), Rs. \(y\) and Rs. \(z\) per person respectively. The first factory decided to honour respectively 2, 4 and 3 employees with a total prize money of Rs. 29,000. The second factory decided to honour respectively 5, 2 and 3 employees with the prize money of Rs. 30,500. If the three prizes per person together cost Rs. 9500, then
(i) represent the above situation by a matrix equation and form linear equations using matrix multiplication.
(ii) solve these equations using matrices.
(iii) which values are reflected in this question?

14. If \( x = a \cos \theta + b \cos \theta \) and \( y = a \sin \theta - b \cos \theta \), then prove that
\[
\frac{y^2}{\frac{d^2y}{dx^2}} - \frac{x}{\frac{dy}{dx}} + y = 0
\]

15. Find \( \frac{dy}{dx} \) if \( y = \sin^{-1} \left( \frac{2^{x+1}}{1+4^x} \right) \)

16. If \( x^y = e^{x-y} \), prove that
\[
\frac{dy}{dx} = \frac{\log x}{(1 + \log x)^2}
\]

17. If \( x = \text{asint} \) and \( y = a (\cos t + \log \tan \frac{t}{2}) \)
Find \( \frac{d^2y}{dx^2} \)

18. If \( x \sin(a+y) + \sin a \cos(a+y) = 0 \)
Prove that \( \frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a} \)

19. If \( x = \tan \left( \frac{1}{a} \log y \right) \), show that
\[
(1 + x^2) \frac{d^2y}{dx^2} + (2x-a) \frac{dy}{dx} = 0
\]

20. If \( y = \frac{\sin^{-1} x}{\sqrt{1-x^2}} \), prove that
\[
(1 - x^2) \frac{d^2y}{dx^2} - 3x \frac{dy}{dx} - y = 0
\]

21. If \( y = e^{a \cos x} \) prove that
\[(1 - x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} - a^2y = 0\]

22. If \(y = \cos^{-1}x\), find \(\frac{d^2y}{dx^2}\) in terms of \(y\) alone.

23. Show that the fnc.
\[
F(x) = \begin{cases} \frac{\sin x}{x} + \cos x, & x > 0 \\ 2, & x = 0 \\ \frac{4(1-\sqrt{1-x})}{x}, & x < 0 \end{cases}
\]
is discontinuous at \(x = 0\)

24. Discuss the continuity of
\(F(x) = |x| + |x - 1|\) at \(x = 0\) and 1

25. If \(f(x) = \begin{cases} \frac{x}{x-1} - 1, & x \neq 1 \\ -1, & x = 1 \end{cases}\)
Check the continuity at \(x = 1\)

26. Show that fnc. \(F(x) = \sin x \cdot \cos x\) is a continuous function.

27. If \(y = x \log \left(\frac{x}{a+bx}\right)\), prove that
\[X^2 \frac{d^2y}{dx^2} = \left(\frac{xdy}{dx} - y\right)^2\]

28. Prove that
\[
\Delta = \begin{vmatrix} a + bx & c + dx & p + qx \\ ax + b & cx + d & px + q \\ u & v & w \end{vmatrix} = (1-x^2) \begin{vmatrix} a & c & p \\ b & d & q \\ u & v & w \end{vmatrix}
\]
1. Name the phenomenon and one bird where the female gamete develops into a new organism.

2. Differentiate between:
   (a) Monoecious and dioecious plants. (Give Examples)
   (b) Oestrous and Menstrual cycle.
   (c) Ovipary and vivipary.

3. State the difference between meiocyte and gamete w.r.t chromosome number.

4. If you squeeze a seed of orange, you might observe many embryos of different sizes. How is it possible. Explain?

5. State the significance of sporopollenin.

6. Draw a well labelled diagram of anatropous ovule.

7. Write a short note on development of endosperm. Mention the type with example.

8. Differentiate between monocot and dicot seed with the help of well labelled diagram.


10. What is Colostrum?

11. Draw a sectional view of seminiferous tubule of a human and label the following cells:
   (a) Cells that divide by mitosis to increase their numbers
(b) Cells that undergo mitosis.
(c) Cells that undergo meiosis.
(d) Cells that help in the process of spermiogenesis.


13. Draw well labelled diagram of human:
(a) Male reproductive System.
(b) Female reproductive system.
(c) Sperm.
(d) Mammalian Ovary (Sectional View).

14. Give main difference between GIFT & ZIFT.

15. How does CuT acts as an effective Contraceptive?

16. Suggest and Explain three ART.

17. Explain the phenomenon of incomplete dominance with example.

18. Differentiate between male hetrogamy and female hetrogamy with the help of example.

19. Define multiple allelism taking an example.

20. Explain linkage and recombination.

1. A famous doctor charges high for consultation from his patients and refuses to treat the poor patients without consultation charges. He also pays attention to the medical representative and agents of Pharma Co. He takes gifts and commission also. In your views, is it professional behaviour of doctor? Does he follow the code of conduct of doctor?

2. A firm has taken the decision to employ more male employees than female employees because they can work overtime in case of excess work. Which values are being affected here?

3. In recent times the government has increased the prices of diesel and LPG. Which value is being overlooked here?

4. Removal of mobile towers from residential areas is being planned by the government to promote which value?

5. In an organisation executive director takes all the decision himself. He does give order only to the subordinates. Which value is overlooked here?

6. An electronic company manufacturing TV and Refrigerator wants to bring two new products washing Machine & AC’s in the market. For each product separate division are to be set up. Incharge of working machine division and AC’s division
will be female and disabled person respectively. Which values have been considered here?

7. A personal manager while selecting new employees appoints only those persons who fulfills his personal requirement directly or indirectly. Which values are violated here?

8. A liquor manufacturing firm provides liquors to its employees at cheaper rates to motivate them. Which values are deficient in this plan?

9. A leader solves the problems relating to work and the personal problems also of the followers. Which values he is following here?

10. In a company, employees achieved quantitative standard but could not attain qualitative standards. Which values have been ignored here?

Preparation of Project File in Accountancy

Total 3 Project:

1. Comprehensive Project

2. Specific Projects
Que :- 1  Which one do you prefer to like or dislike of the following Pahari miniature paintings Included in your course of study? Give your appropriate seasons in detail in the light of the capabilities of its painter in handling the medium and technique, depiction of the subject – matter and his way of composition.

1  Krishna with Gopies(Basohli Sub – School)
2  Cosmic Dance of Shiva (Chamba Sub – School)

Que :- 2  How far has its artist been successful in the subject – matter of any one of the following miniature painting ? Substantiate your answer with suitable examples:-

1  Manu Ragini
2  Raja Aniruddha Singh Heera

Que :- 3  Evaluate the artistic achievements of any one of the following painters of the Rajasthani school of miniature painting with special reference to his painting With special reference to his painting included in your course of study .
1  sahibdin (Mewar Sub School)
2  Nihalchand (kishangrah Sub-School)

Que :- 4  Mention the names of those four Sub – Schools of Deccan School of miniature Painting, Which are included in your course of study.

Que :- 5  Mention the names of five painters of Mughal School of Art.

Que :- 6  What is miniature painting? Explain in 200 words.

Que :- 7  Why do you like or dislike the Rajasthani miniature? Give reasons in short?

Que :- 8  Write an essay on the origin and development of Mughal School of Art.

Que :- 9  Describe the main features of Rajasthani or Rajput School of miniature painting.

Que :- 10 Mention the title of a painting of each of the following painters of Rajasthani School.

1  Utkal Ram  2  Dana
3  Guman  4  Nihal Chand
5  Nuruddin  6  Sahibdin
7  Abu Hamid
Que :- 1 Comment on the role of spectators and media in creating a positive sports environment.

Que :- 2 Discuss the concept of women's participation in Sports.

Que :- 3 What is the role of an individual in improvement of sports environment? Discuss in Brief.

Que :- 4 What do you mean by adventure Sports? Discuss the objectives of adventure sports in detail?

Que :- 5 Define leadership. Explain the qualities in Physical education.

Que :- 6 Explain about conservation of water, energy and forests.

Que :- 7 “Diet can enhance the performance of a sports person” Give your comments about this Statement in details.

Que :- 8 Briefly explain about vitamins.

Que :- 9 Discuss the cause and symptoms of anorexia nervosa.

Que :- 10 Explain the prevention and treatment of bulimia.