SUMMER VACATION HOLIDAY HOMEWORK
CLASS- XII

ENGLISH

Q1: Author Study – Alphonse Daudet

Conduct a brief research on Alphonse Daudet, the French author of The Last Lesson. In your own words, write about the following:

His Life: Key events, background, and career.

Major Themes: Common themes and messages in his works.

Literary Style: Narrative techniques, tone, and distinctive features of his writing.

(Write in 150–200 words.)

Q2: Creative Writing – Poetry

Compose 5 original poems on themes of your choice.

Each poem should have at least 3 stanzas.

You may explore themes like nature, peace, patriotism, childhood, dreams, emotions, or festivals.

Note: Present the work in a well-organized and neatly maintained project file.

HINDI

प्रश्न **1-** 'कविता के बहाने' पाठ के आधार पर कविता और जीवन के संबंध पर विचार कीजिए तथा एक ऐसी कविता की रचना कीजिए जो वर्तमान सामाजिक स्थिति (जैसे पर्यावरण, शिक्षा, युवाओं की सोच आदि) को दर्शाती हो।

प्रश्न **2-** 'विभिन्न माध्यमों के लिए लेखन' पाठ के अनुसार समाचार, रेडियो, टीवी और सोशल मीडिया के लेखन शैलियों की तुलना कीजिए। फिर इन्हीं में से किसी एक माध्यम के लिए एक समाचार स्क्रिप्ट तैयार कीजिए (जैसे स्कूल कार्यक्रम की रिपोर्ट, स्थानीय आयोजन आदि)।

PHYSICS

1. Conceptual Exploration with DIY Activity
Topic: Ray Optics – Image Formation by Lenses and Mirrors
Question:
Design an experiment using household items (e.g., magnifying glass, spoon, torchlight) to investigate image formation in convex lenses and mirrors. Record observations for different object distances.
2. Field Mapping – Hands-on Electric Field Lines
Topic: Electric Field and Electric Field Lines
Question:
Create a visual model to represent electric field lines using common materials. Use this to compare field patterns for point charges, dipoles, and charged plates.
3. Application-based Critical Thinking
Topic: Electric Potential and Gauss's Law

Question:
A spherical conductor carries a charge Q. Use Gauss's Law to derive the expression for electric field inside and outside the sphere. Then, explain what happens if the conductor is hollow.
Submission Format:
 Neat handwritten or digital file.
 Include diagrams, photos of activities, and coloured mind maps.
 Add a summary reflection: What did you learn from doing these activities?

CHEMISTRY

XII-A

1. Which of the following solutions will show the highest boiling point?
2. The van't Hoff factor (i) for a dilute aqueous solution of K_2SO_4 is:
3. Which of the following binary mixtures forms a minimum boiling azeotrope?
4. Molality is defined as:
5. Raoult's law is applicable to:
6. Depression in freezing point is directly proportional to:
7. A solution contains non-volatile solute. Its vapor pressure is:
8. Which of the following solutions will have the lowest freezing point?
9. The elevation in boiling point is observed when:
10. Which colligative property is used to determine molar mass of proteins?
11. The freezing point of a solution is lower than that of pure solvent because:
12. A solution of urea boils at 100.18°C. The molality of urea is:
13. The value of K_f for water is:
14. Ideal solution obeys Raoult's law when:
15. What is the effect on vapor pressure when a non-volatile solute is added?
16. Which factor affects solubility of a gas in liquid most?
17. The osmotic pressure of 0.1 M NaCl is:
18. What is the boiling point elevation when 0.1 mol solute is added to 1 kg water?
19. Which solution shows maximum osmotic pressure?
20. Depression in freezing point is calculated by:
21. Which of the following is not a colligative property?
22. Azeotropes are formed due to:
23. Which property is not affected by the nature of solute?
24. The van't Hoff factor for glucose is:
25. The change in vapor pressure due to solute depends on:
26. Reverse osmosis is used for:
27. Henry's law is related to:
28. Solubility of a gas increases with:
29. Which solution shows ideal behavior?
30. Which compound gives maximum i value in solution?
31. Ebullioscopic constant is defined as:

CHEMISTRY

XII-B

1. Write answer of given questions on A -4 sheet.
(I) Chpter - d and f block NCERT exercise questions
(ii) Chapter -d and f block solved intex questions
(iii) chapter-d and f block Exampler questions.

BIOLOGY

1. Starting with zygote, draw the diagrams of the different stages of embryo development in a dicot.
2. Draw the diagram of microsporangium and label it's wall layers. Write briefly on the role of endothelium.
3. The zygote passes through several development stages till implantation, Describe each stage briefly with suitable diagrams in human female.
4. What are the Assisted Reproductive Techniques practised to help infertile couples? Describe any three techniques.

ACCOUNTANCY

1. Sove numerical questions—comprising Multiple Choice Questions (MCQs), Assertion and Reasoning, Short Answer, and Long Answer types—based on the chapters: Fundamentals of Partnership, Change in Profit Sharing Ratio, and Admission of a Partner on the basis of Board PYQ from 2020 to 2024 in a separate notebook.

2. Complete your notebook till the chapters Admission of partner.

B. ST.

Solve 12 sample papers given in the reference book of Business Studies in fair copy.

ECONOMICS

Solve the assertion reason based questions and interpret case based questions given at the end of the chapters in the reference book of Indian Economic Development

HISTORY

Prepare a hand written project report file on any one of the topic given below
(i) Town planning and artifacts of Harappa civilization
(ii) Mahabharata through a readers eye
(iii) Jainism and Buddhism
General instructions:
(i) The project should be hand written on A4 size paper
(ii) It should consist of pictures, maps, Color illustrations, relevant newspaper clippings, maps, charts may be hand drawn or printed (if it is relevant for any aspect of your project) are welcome. acknowledgement and Bibliography.
(iii) No correction pen to be used or written matter to be crossed out. In case of any mistakes, redo the sheet.
(iv) Pictures should be labeled.

GEOGRAPHY

Q-1 What is ‘demographic cycle’? Describe three stages of the Demographic Transition Theory.

POLITICAL SCIENCE

Q.4. Collect previous years 6 Long questions and write answers as per marking scheme of these chapters:
 Challenge of Nation building.
 Era of one party dominance.
 End of Bipolarity.
 Contemporary centre of powers.

INFORMATICS PRACTICES (065)

Q.1 Write a program in Python Pandas to create the following DataFrame batsman from a Dictionary:

R_No	Name	Score1	Score2
1	Sunil Patil	90	80
2	Gaurav Singh	65	45
3	PiyushGoel	70	90
4	Kartik Thakur	80	76

Perform the following operations on the DataFrame:

(i) Add both the scores of a batsman and assign to column "Total".
(ii) Display the highest score in both Score1 and Score2 of the DataFrame.
(iii) Display the DataFrame.

Q.2 Consider the given DataFrame'Genre' :

	Type	Code
0	Fiction	F
1	Non-fiction	NF
2	Drama	D
3	Poetry	P

Write suitable Python statements for the following:

(i) Add a column called Num_Copies with the following data : [300, 290, 450, 760]
(ii) Add a new genre of type 'Folk Tale' having as 'FT' and 600 number of copies.
(iii) Rename the column 'Code' to 'Book_Code'.

P. EDU.

To be written in the Practical File

Q1. Practical Games

Write about any one team game under the following headings in your practical file:
1. History of the game
2. Main tips at a glance / Measurements
3. Latest general rules
4. Fundamental skills
5. Terminology
6. Important tournaments and venues
7. Sports awards

Q2. Lifestyle Diseases and Yoga Asanas

Write about the following lifestyle diseases along with any three yoga asanas for each, in the given sequence:
1. Obesity
2. Diabetes
3. Asthma
4. Hypertension
5. Back pain and arthritis

Note: Use proper pictures and diagrams wherever necessary.

PSYCHOLOGY

Activity-Based Homework Questions:

1. Case Study Analysis (Chapter: Self and Personality or Psychological Disorders)

Find a short real-life or fictional case (from a book/movie) and analyze it based on the concepts of personality traits or psychological disorders.

Instructions: Identify the traits or disorder, provide evidence from the case, and suggest a suitable psychological explanation.---

2. Personality Test Activity (Chapter: Self and Personality)

Take a simple personality test (like MBTI or Big Five online) and analyze your results.

Instructions: Write a short report discussing your personality traits and relate them to the theories of personality you learned (e.g., Freud's, Allport's, or Eysenck's theory).

MATHS

1.	Determine the product $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix}\begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$ and use it to solve the system of equations: $x - y + z = 4,\ x - 2y - 2z = 9,\ 2x + y + 3z = 1$
2.	Prove that $aI + bA + cA^2 = A^3$, if $A = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ a & b & c \end{bmatrix}$
3.	If $A = \begin{bmatrix} 0 & 2b & c \\ a & b & -c \\ a & -b & c \end{bmatrix}$, then find the value of a, b and c. Such that $A^T A = I$
4.	If $A = \begin{bmatrix} 0 & -x \\ x & 0 \end{bmatrix},\ B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}\ and\ x^2 = -1$ Then show that $(A + B)^2 = A^2 + B^2$
5	If $A = \begin{bmatrix} 1 & -1 \\ 2 & 1 \end{bmatrix},\ B = \begin{bmatrix} a & 1 \\ b & -1 \end{bmatrix}$ and $(A + B)^2 = A^2 + B^2 + 2AB$, find *a* and *b*.
6.	Given $A = \begin{bmatrix} 0 & -1 & 2 \\ 2 & -2 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ 1 & 1 \end{bmatrix}$. Find the product AB and also find $(AB)^{-1}$
7.	Using matrix method, solve the system of linear equations $x - 2y = 10, 2x - y - z = 8$ and $-2y + z = 7$

8. Two cricket teams honored their players for three values, excellent batting, to the point bowling and unparalleled fielding by giving ₹ x, ₹ y and ₹ z per player respectively. The first team paid respectively 2, 2 and 1 players for the above values with a total prize money of 11 lakhs, while the second team paid respectively 1,2 and 2 players for these values with a total prize money of ₹ 9 lakhs. If the total award money for one person each for these values amount to ₹ 6 lakhs, then express the above situation as a matrix equation and find award money per person for each value.

9. ***The following questions 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 for A.

(b) Both A and R are true but R is not the correct explanation for A.

(c) A is true but R is false.

(d) A is false but R is true.

1. **Assertion (A) :** Determinant is a number associated with a square matrix.
   Reason (R) : Determinant is a square matrix.
2. **Assertion (A) :** If $A = \begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$, then the matrix A is singular if $x = 3$.
   Reason (R) : A square matrix is a singular matrix if its determinant is zero.
3. **Assertion (A) :** If A is a 3×3 matrix, $|A| \neq 0$ and $|5A| = K|A|$, then the value of $K = 125$.
   Reason (R) : If A be any square matrix of order $n \times n$ and k be any scalar then $|KA| = K^n |A|$.
4. **Assertion (A) :** If $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$ then $x = \pm 6$.
   Reason (R) : If A is a skew-symmetric matrix of odd order, then $|A| = 0$.
5. **Assertion (A) :** If $A = \begin{bmatrix} 1 & 1 & -2 \\ 2 & 1 & -3 \\ 5 & 4 & -9 \end{bmatrix}$, then $C_{22} = 1$, where C_{ij} denotes the co-factor of i^{th} row and j^{th} column.
   Reason (R) : The co-factor C_{ij} of a_{ij} in the matrix $A = [a_{ij}]_{n \times n}$ equal to $(-1)^{i+j} M_{ij}$.
6. **Assertion (A) :** If A is an invertible square matrix, then A^T is invertible.
   Reason (R) : Inverse of invertible symmetric matrix is a symmetric matrix.
7. **Assertion (A) :** If A is an invertible matrix of order 3 and $|A| = 5$ then, $|\text{adj } A| = 25$.
   Reason (R) : If B is a non-singular matrix of order n. Then, $|\text{adj } A| = |A|^{n-1}$.
8. **Assertion (A) :** If $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & 1 \\ 0 & 0 & 2 \end{bmatrix}$ then $|\text{adj (adj } A)| = 16$.
   Reason (R) : $|\text{adj (adj } A)| = |A|^{(n-1)^2}$

10.(a)

Read the following passage and answer the following questions.

Three friends Rahul, Ravi and Rakesh went to a vegetable market to purchase vegetable. From a vegetable shop Rahul purchased 1 kg of each Potato, Onion and Brinjal for a total of ₹21. Ravi purchased 4 kg of potato, 3 kg of onion and 2 kg of Brinjal for ₹60 while Rakesh purchased 6 kg potato, 2 kg onion and 3 kg brinjal for ₹70.

(*i*) If the cost of potato, onion and brinjal, are ₹x, ₹y and ₹z per kg respectively, then convert above situation into system of linear equations

(*ii*) Convert the above system of linear equations in (*i*) in the form of $AX = B$.

(*iii*) (*a*) Find A^{-1}.

10.(b)

Read the following passage and answer the following questions.

In coaching institutes, the students not only get academic guidance but also they get to know about career options and right goals as per their interest and academic record.

A coaching institute conduct classes in two sections A and B and fees for rich and poor children are different. In section A, there are 20 poor and 5 rich children and total monthly collection is ₹9,000, where as in section B, there are 5 poor and 25 rich children and total monthly collection is ₹26,000.

(*i*) (*a*) If ₹x and ₹y be the fees for rich and poor children respectively then the information provided in problem in system of linear equation express.

(*b*) Express the system of linear equations obtained in (*a*) as matrix equation.

(*ii*) Find the fees for rich and poor children.

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