

Sub: English Language and Literature

Assignment: Previous Years' Question Papers and Complete Syllabus Revision

Solve the last five years' question papers thoroughly. Attempt each and every question from all five papers without skipping any question.

Along with solving the papers, revise each and every chapter mentioned in the prescribed syllabus. Ensure that you understand all the concepts, important points, themes, characters, literary devices, and other examination-relevant topics covered in the chapters.

Instructions:

1. Solve all five years' question papers completely.
2. Revise every chapter included in the syllabus.
3. Write all answers neatly and systematically.
4. Do not leave any question unanswered.
5. Check your answers and identify topics that need further revision.
6. Complete the assignment sincerely and be fully prepared for the examination.

विषय : हिंदी

1 पढ़ाए गए सभी गद्य और पद्य पाठ प्रत्येक पाठ से पांच प्रश्नों के उत्तर लिखें।

2 कोई एक अपठित काव्यांश लिखें उसे पर आधारित सीबीएसई मानक के अनुसार पांच प्रश्न और उनके उत्तर भी लिखें। तीन बहुविकल्पीय प्रश्न और दो लघु प्रश्न होने चाहिए।

3 निम्नलिखित विषयों में पर पत्र लिखें

- 1) 2 संपादक के नाम पत्र
- 2) 2 नगर निगम के अधिकारी के नाम पत्र
- 3) 1 विद्युत विभाग के अधिकारी के नाम पत्र

Subject : MATHEMATICS

AREAS RELATED TO CIRCLES

1. In a circle of radius 35 cm, an arc subtends an angle of 72° at the centre. Find the length of the arc and the area of the sector.
2. The length of the minute hand of a clock is 5 cm. Find the area swept by the minute hand during the time period 6:05 am and 6:40 am.
3. The area of a sector is one-twelfth that of the complete circle. Find the angle of the sector.
4. The perimeter of a sector of a circle of radius 5.6 m is 20 m. find the area of the sector.
5. A chord of a circle of radius 10 cm subtends a right angle at the centre. Find:
 - (i) Area of minor sector
 - (ii) Area of major sector
 - (iii) Area of minor segment
 - (iv) Area of major segment
6. A chord of length 12 cm subtends an angle of 120° at the centre of the circle. Find the area of the minor segment.
7. A chord 10 cm long is drawn in a circle whose radius is $5\sqrt{2}$ cm. Find the area of both minor and major segments.
8. A circle of radius 12 cm is divided into 11 identical sectors. Find the total area of 7 such sectors.
9. The perimeter of sector OAB of a circle with centre O and radius 5.6 cm, is 15.6 cm. find the length of arc AB. Also find the measure of central angle.
10. The diameter of a semi circular protractor is 14 cm. find its perimeter.

SURFACE AREA AND VOLUME

1. A solid is composed of a cylinder with hemispherical ends. If the whole length of the solid is 104 cm and the radius of each of the hemispherical end is 7 cm, find the cost of polishing its surface at the rate of Rs 10 per sq cm.
2. A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. find the total surface area of the toy.
3. A solid is in the shape of a cone surmounted on a hemisphere, the radius of each of them is being 3.5 cm and the total height of the solid is 9.5 cm. find the volume of the solid.
4. Two cones with same base radius 8 cm and height 15 cm are joined together along their bases. Find the surface area of the shape formed.
5. From a solid cylinder of height 2.8 cm and diameter 4.2 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid.
6. Marbles of diameter 1.4 cm are dropped into a cylindrical beaker of diameter 7 cm containing some water. Find the number of marbles that should be dropped into the beaker so that the water level rises by 5.6 cm.
7. The largest cone is carved out from a solid cube of side 21 cm. find the volume of the remaining solid.
8. A toy is in the form of a hemisphere surmounted by a right circular cone of the same base radius as that of the hemisphere. If the radius of the base of the cone is 21 cm and its volume is $\frac{2}{3}$ of the volume of the hemisphere, calculate the height of the cone and surface area of the toy.
9. A cone of maximum size is carved out from a cube of edge 14 cm. find the surface area of the cone and of the remaining solid left out after the cone carved out.

10. A circus tent is in the shape of a cylinder surmounted by a conical top of same diameter of 56 m. the height of the cylindrical part is 6 m and the total height of the tent is 27 m, find the area of canvas used in making the tent.

STATISTICS

1. Find the mean of the following distribution

CI	0-6	6-12	12-18	18-24	24-30	30-36	36-42
FREQUENCY	10	11	7	4	4	3	1

2. If the mean of the following distribution is 180 find the value of x and y and total frequency is 64

CI	110-130	130-150	150-170	170-190	190-210	210-230	230-250
FREQUENCY	7	6	9	13	x	5	y

3. Find the mean, mode and median of the following data

CI	0-20	20-40	40-60	60-80	80-100	100-120	120-140
FREQUENCY	6	8	10	12	6	5	3

4. If median = 46 and n = 230, find the value of x and y

CI	10-20	20-30	30-40	40-50	50-60	60-70	70-80
FREQUENCY	12	30	x	65	y	25	18

5. Find the mode of the following data

CI	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40
Frequency	2	5	8	9	12	14	14	15	11	13

PROBABILITY

- In a simultaneous throw of a pair of dice, find the probability of getting
 - 8 as a sum
 - A doublet of prime number
 - A king of red suit
 - A queen of black suit
 - 2 will not come either time
- Find the probability that a number selected from number 1 to 25 is not a prime number.
- One card is drawn from a well shuffled pack of 52 cards. Find the probability of getting
 - A face card
 - A red face card
 - a queen of black suit
 - a jack of hearts
 - not a jack
- A bag contains 5 red, 8 white and 7 black balls. A ball is drawn at random. Find the probability that the ball is
 - Red or white
 - not black
 - neither white nor black
- All the kings and queens are removed from a pack of 52 cards. The remaining cards are well shuffled and then a card is randomly drawn from it. Find the probability that the card is
 - A red face card
 - A black card
 - either a red card or a queen
 - a red queen
- Two coins are tossed simultaneously. Find the probability of getting
 - Two heads
 - One head
 - One tail
 - at least one head
 - at most one head
 - no head

7. Three unbiased coins are tossed together. Find the probability of getting
- | | |
|--------------------------|------------------------|
| (i) All heads | (iv) at least one head |
| (ii) Two heads | (v) exactly two heads |
| (iii) At least two heads | (vi) at most one tail |
8. What is the probability that a leap year has 53 Tuesdays and 53 Mondays?

Subject : SCIENCE

1. Write all ten practicals in your practical file, as explained in class.
2. Complete your portfolio according to the topic allotted to you.
3. Solve previous years' questions from all the chapters taught so far.
4. Prepare the chapters "Carbon and Its Compounds" and "Reproduction in Living Organisms" for your October monthly test.
5. Write down all the mathematical formulae used in the Physics chapters and learn them by heart.

A. MAP PRACTICE WORK

Instructions: Use an outline political map of India for each activity. Label neatly, use a pencil for locating places, and complete the map work in the order given below.

Day 1 – History

Nationalism in India: Mark and label the Congress sessions at Calcutta (1920), Nagpur (1920) and Madras (1927).

Day 2 – History

Mark and label the places associated with the Satyagraha movements: Champaran, Kheda and Ahmedabad (mill workers). Also locate Jallianwala Bagh and the Dandi March route/endpoint.

Day 4 – Geography

Water Resources: Locate and label Salal, Bhakra Nangal, Tehri, Rana Pratap Sagar, Sardar Sarovar, Hirakud, Nagarjuna Sagar and Tungabhadra dams.

Day 6 – Geography

Minerals and Energy Resources: Iron ore mines—Mayurbhanj, Durg, Bailadila, Bellary and Kudremukh. Coal mines—Raniganj, Bokaro, Talcher and Neyveli. Oil fields—Digboi, Naharkatia, Mumbai High, Bassein, Kalol and Ankleshwar.

Day 7 – Geography

Power Plants: Thermal—Namrup, Singrauli and Ramagundam. Nuclear—Narora, Kakrapara, Tarapur and Kalpakkam

Day 9 – Geography

Manufacturing Industries and Lifelines: Software technology parks—Noida, Gandhinagar, Mumbai, Pune, Hyderabad, Bengaluru, Chennai and Thiruvananthapuram. Major sea ports—Kandla, Mumbai, Marmagao, New Mangalore, Kochi, Tuticorin, Chennai, Visakhapatnam, Paradip and Haldia.

Day 10 – Geography

Lifelines of National Economy: Locate and label the international airports at Amritsar, Delhi, Mumbai, Chennai, Kolkata and Hyderabad. Revise all maps from Days 1–9.

B. PROJECT WORK

1. Topic: **consumer rights**

Your project must include the following topics:

2. Cover Page
3. Certificate
4. Acknowledgement
5. Index

6. Introduction to Consumer Rights
7. Objectives of the Project
8. Six Consumer Rights
9. Consumer Exploitation
10. Consumer Protection Act, 2019
11. Consumer Courts and Complaint Redressal
12. Quality Marks — ISI, AGMARK, BIS Hallmark and FSSAI
13. Case Study on Consumer Exploitation
14. Consumer Awareness Survey
15. Conclusion
16. Bibliography **Presentation requirements**

- Length: 6–8 handwritten pages.
- Include a cover page, index, introduction, main content, conclusion and bibliography.
- Add at least 3 relevant pictures, drawings, graphs or newspaper clippings.
- Use examples and simple language. Write the project in your own words.

Use separate outline maps wherever needed and keep the map work neat, accurate and clearly labelled.

c. **Read and prepare chapter** – print culture and the modern world from history and outcomes of democracy from politics and prepare 10- 10 internal questions from each chapter with answers of 5-6 points.

Subject : Artificial Intelligence

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQs)

Choose the correct option for each of the following questions.

Q1. Which type of non-verbal communication is shown by actions like raising a hand to greet or pointing a finger at someone?

- (i) Facial Expression
- (ii) Posture
- (iii) Gesture
- (iv) Eye Contact

Q2. Sanjana opened a small grocery store in her neighbourhood. Within a year, she expanded her store and later opened four more branches across the city. She now plans to expand to two more cities. Which stage of the entrepreneurial process is she currently in?

- (i) Survive
- (ii) Enter
- (iii) Grow
- (iv) Retire

Q3. If a computer system uses a rule-based program to grade students' essays, but gives incorrect grades when students use new words or creative expressions not included in the training, what is the root cause?

- (i) The program was not tested properly.
- (ii) The rule-based approach is static and cannot adapt to new words or expressions.
- (iii) The students wrote essays that were too long.
- (iv) The rule-based program was not trained on enough essays.

Q4. In a given dataset of a fruit shop containing columns like Fruit Name, Color, and Price, what do we call these structural columns?

- (i) Instances
- (ii) Values
- (iii) Models
- (iv) Features

Q5. Why is it highly recommended NOT to evaluate a machine learning model using the exact same data on which it was trained?

- (i) It helps the model learn faster.
- (ii) It reduces bias in the dataset.
- (iii) It may lead to overfitting and give an overly optimistic accuracy score.

(iv) It improves the performance of the model on unseen data.

SECTION B: NUMERICAL & CRITICAL THINKING PROBLEMS

Solve the following calculation step-by-step.

Q6. [Maths in AI: Precision Calculation]

In a spam email detection system, out of 1000 emails received, 300 are actual spam. The system correctly identifies 240 spam emails as spam, but it also mistakenly marks 60 legitimate emails as spam.

Calculate the Precision of this AI system using the formula:

$$\text{Precision} = \frac{\text{True Positives (TP)}}{[\text{True Positives (TP)} + \text{False Positives (FP)}]}$$

SECTION C: SHORT ANSWER QUESTIONS (20-30 Words)

Answer the following questions briefly.

Q7. Explain what happens during the Data Acquisition and Data Exploration stages (2nd and 3rd stages) of an AI Project Cycle.

Q8. Differentiate between Supervised Learning, Unsupervised Learning, and Reinforcement Learning based on how they handle unseen or dynamic environments.

SECTION D: CASE STUDY & ETHICS (50-80 Words)

Read the scenario carefully and answer the questions that follow.

Scenario: A prestigious school develops an AI system to automatically shortlist students for a competitive scholarship. The algorithm is trained to prioritize students who complete online application forms quickly—assuming that fast completion reflects confidence and tech-savviness.

However, students who are non-native English speakers, or those from low-income backgrounds who do not have high-speed internet or computers at home, take longer to fill out the form. As a result, many brilliant and deserving students are rejected by the system.

Questions:

1. Identify the Bias: Mention two distinct reasons why this AI algorithm gave biased and unfair results.
2. Apply Bioethics Principles: Suggest how the principles of "Do No Harm" and "Give Justice" can be applied to redesign this system fairly.

Q.9 People of a village are totally dependent on the farmers for their daily food items. Farmers grow new seeds by checking the weather conditions every year. An AI model is being deployed in the village which predicts the chances of heavy rain to alert farmers which helps them in doing the farming at the right time. Which evaluation parameter out of precision, recall and F1 Score is best to evaluate the performance of this AI model? Explain.

Q10. Neural networks are said to be modelled the way how neurons in the human brain behave. A similar system is mimicked by the AI machine to perform certain tasks. Explain how neural networks work in an AI model and mention any three features of Neural Networks.

Q. 11 How do you understand whether a machine/application is AI based or not? Explain with the help of an example.