

PRAYAG PUBLIC SCHOOL
Summer Vacation Holiday Homework (2026–27)
Class-10th

AI

Revisiting AI Project Cycle

1. Outline the main steps in the AI Project Cycle briefly.
2. What roles does computer vision play in agricultural monitoring systems?
3. Mention the factors that knowingly or unknowingly influence our decision making.
4. What is the necessity for ethical frameworks in AI development?
5. What do you mean by bioethics?
6. What is Natural Language Processing? Explain any two real-life applications of NLP.
7. How do value-based frameworks contribute to ethical decision-making by emphasizing fundamental principles and values?

Case-study/Application Oriented Questions:

8. Your grandmother watches you use AI applications. She wants to understand more about it. Help her understand the term artificial intelligence by giving the right definition and explain to her with an example how machines become artificially intelligent.
9. Achill wants to learn how to scope the problem for an AI Project. Explain him the following: a) 4W Problem Canvas b) Problem Statement Template
10. Shana works for a company wherein she was assigned the task of developing a project using AI project cycle. She knew that the first stage was scoping the problem. Help her list the remaining stages that she must go through to develop the project.
11. The world is competitive nowadays. People face competition in even the tiniest tasks and are expected to give their best at every point in time. When people are unable to meet these expectations, they get stressed and could even go into depression. We get to hear a lot of cases where people are depressed due to reasons like peer pressure, studies, family issues, relationships, etc. and they eventually get into something that is bad for them as well as for others. So, to overcome this, Cognitive Behavioral Therapy (CBT) is considered to be one of the best methods to address stress as it is easy to implement on people and also gives good results. This therapy includes understanding the behavior and mind of a person in their normal life. With the help of CBT, therapists help people overcome their stress and live a happy life. For the situation given above,
 - i. Write the problem statement template
 - ii. List any two sources from which data can be collected.
 - iii. How do we explore the data?
12. Create a 4W Project Canvas for the following. As more and more new technologies get into play, risks will get more concentrated into a common network. Cyber security becomes extremely complicated in such scenarios and goes beyond the control of firewalls. It will not be able to detect unusual activity and patterns including the movement of data. Think how AI algorithms can scrape through vast amounts of logs to identify susceptible user behavior. Use an AI project cycle to clearly identify the scope, how you will collect data, model and evaluation parameters.

ICT Skills

1. Objectives of Information and communication technology? Advantages and disadvantages of ICT.
2. Difference between Hardware and Software?
3. What is BIOS?
4. What are the different types of keys in Keyboard?
5. What are files and folders in a computer system?
6. What is a Security Break?
7. What are the threats?
8. How can we protect our data?

Advance Concepts of Modeling in AI

1. Give difference between rule based and learning based AI models.
2. What is supervised, unsupervised and reinforcement learning? Explain with examples.
3. What is clustering and how is it different from classification?
4. Explain neural networks. Also give functions of three layers of neural networks.
5. Differentiate between classification and regression model.

Case-study/Application Oriented Questions:

6. Identify the type of learning (supervised, unsupervised, reinforcement learning) are the following case studies most likely based on?
 - a) Case Study 1: A company wants to predict customer churn based on past purchasing behavior, demographics, and customer interactions. They have a dataset with labeled examples of customers who churned and those who did not.

Case Study 2: A social media platform wants to group users based on their interests and behavior to recommend relevant content. They have a large dataset of user interactions but no predefined categories. Which type of learning is this case study most likely based on?

Case Study 3: An autonomous vehicle is learning to navigate through a city environment. It receives feedback in the form of rewards for reaching its destination safely and penalties for traffic violations. Which type of learning is this case study most likely based on?

d) Case Study 4: A healthcare provider wants to identify patterns in patient data to personalize treatment plans. They have a dataset with various patient attributes but no predefined labels indicating specific treatment plans. Which type of learning is this case study most likely based on?

e) Case Study 5: A manufacturing company wants to optimize its production process by detecting anomalies in sensor data from machinery. They have a dataset with examples of normal and anomalous behavior. Which type of learning is this case study most likely based on?

7. Identify the type of model (classification, regression, clustering, association model) are the following case studies most likely based on?

a) A bank wants to predict whether a loan applicant will “default” or “non-default” on their loan payments. They have a dataset containing information such as income, credit score, loan amount, and employment status.

b) A real estate agency wants to predict the selling price of houses based on various features such as size, location, number of bedrooms, and bathrooms. They have a dataset containing historical sales data.

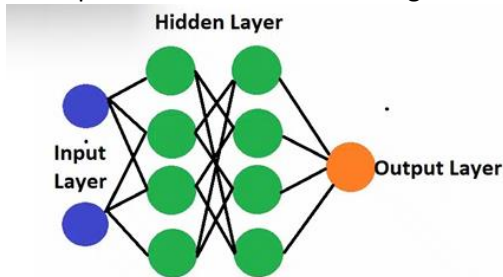
c) A marketing company wants to segment its customer base into distinct groups based on purchasing behavior for targeted marketing campaigns. They have a dataset containing information such as purchase history, frequency of purchases, and amount spent.

8. Neural networks are said to be modeled 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.

9. Differentiate between Classification and Regression.

10. Why should we avoid using the training data for evaluation?

11. Explain neural networks. Also give functions of three layers of neural networks.



12. Identify and explain the types of the learning-based approaches in the figures given below.



Figure 1



Figure 2

“Use your time wisely, because time once gone never comes back.”

Note: Attempt all the questions as per the instructions.

Q1. Read the passage given below and answer the questions that follow:

As the results of the recent elections in West Bengal and Assam were awaited, the entire nation seemed to be *sitting on the edge of their seats*. From bustling towns to quiet villages, discussions about politics had become the *talk of the town*. Citizens, especially young voters, were eagerly waiting to see whether their expectations would turn into reality.

In today's India, voting has become more than just a formal duty; it is a powerful expression of people's will. Unlike the past, when many voters would *follow the crowd blindly*, modern citizens try to *make an informed decision*. They carefully examine candidates and their promises related to education, employment, healthcare, and development.

The contrast between the present and the past is quite striking. In earlier times after independence, democracy was still in its *infancy*. People were not fully aware of their rights, and information was limited. Today, however, the situation has changed dramatically. With digital media and widespread communication, voters can now *separate the wheat from the chaff* by analyzing facts and fake promises.

In West Bengal, political discussions often become intense, reflecting its strong democratic culture. Similarly, Assam has witnessed active participation from citizens who want their voices to be heard *loud and clear*. In both states, people stand in long queues, proving that democracy is still *alive and kicking*.

The eagerness for election results goes beyond winning or losing. It reflects the *hopes and dreams* of millions who believe that their vote can *make or break* the future of the nation. Citizens expect leaders who are honest, responsible, and committed to public welfare.

However, not everything is perfect. Some voters still get influenced by *empty promises* or emotional manipulation. This shows that there is still a need to *bridge the gap* between awareness and action. Democracy can only succeed when citizens *rise above personal interests* and think about the nation as a whole.

Today's voters are no longer passive observers; they are active participants in shaping the country's future. As they await the results, one thought remains constant — choosing the right leadership is the *need of the hour* for building a stronger India.

In conclusion, elections are not just political events but a reflection of collective responsibility. The journey from the past to the present shows that Indian democracy has come a long way. Now it is up to every citizen to ensure that their vote is used wisely, because every vote truly counts.

1. What does “sitting on the edge of their seats” mean in the passage?

- (a) Sleeping peacefully (b) Very anxious and excited (c) Confused (d) Ignoring elections

2. What do modern voters try to do before voting?

- (a) Follow others (b) Make informed decisions (c) Avoid voting (d) Vote randomly

3. What is the main idea of the passage?

- (a) Elections are unimportant (b) Only leaders matter
(c) Awareness in voting has increased in India (d) Old democracy was better

4. How has the voting behavior of citizens changed over time?

5. Explain the idiom “separate the wheat from the chaff” in context.

6. Why is voter awareness important in modern democracy?

7. Write True or False:

Today, voters are completely unaware of political issues. (True / False)

8. Fill in the Blanks:

Democracy is still _____ and kicking in India.

9. “Every vote counts.”

Explain this statement with reference to the passage.

10. Find a word from the passage that means “expectations or hopes”.

2. Attempt all the questions:

(i) Fill in the blank by choosing the correct option to complete an online update:

The story has been _____ of proportion because of the aggressive reaction of the people.

- (a) blown out (b) blown in (c) blown up (d) blown

(ii) Read the conversation between a nurse and a patient.

Complete the sentence by reporting the reply correctly.

Nurse: Has the wound started to heal?

Patient: No, it is still bleeding.

The nurse while trying to find out how the patient was feeling asked whether the wound had started to heal to which the patient replied _____.

(iii) Select the correct option to fill in the blank for the given line from a neighbourhood weekly.

Residents are requested to segregate the wet from the dry waste.

Residents _____ adhere to civic norms.

- (a) can (b) ought to (c) will be (d) might

(iv) Select the option that identifies the error and supplies the correction for the following line from a magazine article:

Blogging today is increasingly gaining on popularity.

Option no.	Error	Correction
(a)	popularity	popular

(b)	on	in
(c)	increasingly	increase
(d)	today	yesterday

(v) Complete the given narrative by filling in the blank with the correct form of the word given in the brackets:

The boy _____ (realize) his mistake when he reached the end of his journey.

(a) has realized (b) can realize (c) realizing (d) realized

(vi) Fill in the blank by using the correct option.

When Sharad reached the airport he was totally _____ because he was flying for the first time.

(a) at ocean (b) at sea (c) at awe (d) at the mercy

(vii) Report the dialogue between two students, by completing the sentence:

Rashid: Are you participating in the annual Hindi play ?

Rakesh: I would like to, but I have to visit my ailing grandmother that day.

In response to the question about whether Rakesh would be participating in the annual Hindi play, Rakesh says _____.

(viii) Identify the error in the given sentence and supply the correction:

The Commissioner invitation the residents to share their problems regarding the sanitation issues.

Use the given format for your response.

Error	Correction

(ix) Samar shared some information with Sameer about his recent visit to a wildlife sanctuary. Report Sameer's question.

Did you spot a tiger during the safari?

(x) Fill in the blank by choosing the correct option.

The entire family _____ with a mild infection and they recovered soon.

(a) came up (b) came down (c) came along (d) came in

(xi) Select the correct option to complete the narration of the dialogue between Shyam and Shivam.

Shyam: Have you ever seen this actor's latest film?

Shivam: Yes, I have. The actor has done a marvellous job.

Shyam met his friend Shivam and they began talking. Shyam asked Shivam whether he had seen the actor's latest film. Shivam affirmed and said

(a) that the actor has done a marvellous job. (b) that the actor had done a marvellous job.
(c) that the actor has been doing a marvellous job. (d) that the actor could have done a marvellous job.

(xii) Fill in the blank with the correct option:

There is something wonderful waiting _____ her when she reaches home.

(a) of (b) about (c) for (d) inside

3. Attempt all the questions:

(A) You are Anita/Ashok. You came across the following advertisement :

Manthan: We Lead the Future Leaders

Web designing is not only about creating the best pages and displaying content. It is about converting the idea and turning it into a beautiful website.

Write a letter in **100 - 120** words to the Director, Manthan, inquiring about their short-term courses and asking for all necessary details such as eligibility, duration, fees and placement services.

(B) You are Rachna/Ramesh living at Maya Enclave, New Delhi. There have been a spate of chain snatching incidents in your colony by young boys riding bikes. Write a letter in **100 - 120** words to the editor of the colony newsletter drawing attention to the increase in the number of petty crimes in the colony. Mention the insecurity felt by the residents and suggest strict security measures to be introduced.

(C) Digital/Visual learning came to the rescue of teachers and students in recent times. It also heralds the transition from old to new trends in the education system. Education can now be accessed anytime from anywhere and helps students learn at their own pace. Write an analytical paragraph on 'Virtual learning' in about **100 - 120** words.

4. Read the given extract and answer the following:

1. To the assembled guests and the watching world, I said: Today, all of us do, by our presence here confer glory and hope to newborn liberty. Out of the experience of an extraordinary human disaster that lasted too long, must be born a society of which all humanity will be proud. We who were outlaws not so long ago, have today been given the rare privilege to be host to the nations of the world on our own soil. We thank all our distinguished international guests for having come to take possession with the people of our country of what is after all, a common victory for justice, for peace, for human dignity.

(i) A society that _____ was born out of human disaster.

(a) all humanity would be proud of (b) was full of extraordinary human disaster
(c) was full of outlaws and fighters (d) hosts nations on their soil

(ii) The former outlaws were given the privilege of _____.

(a) getting citizenship of their country (b) participating in a trade conclave
(c) finalizing the foreign policy (d) hosting the nations of the world on their soil

(iii) The speaker was overwhelmed with the sense of _____.

(a) gratitude (b) happiness (c) achievement (d) charity

(iv) State whether the following statement is True or False:

The common victory was when South Africa did not become an independent nation.

(v) The noun of the word 'Confer' is:

- (a) conferring (b) confident (c) conference (d) configuring

2. What is the boy now, who has lost his ball,

What, what is he to do ? I saw it go

Merrily bouncing, down the street and then

Merrily over - there it is in the water !

No use to say 'O there are other balls':

(i) What does the expression 'what, what is he to do?' denote?

- (a) loss of the ball (b) ask the poet for another ball (c) boy's grief over the loss of the ball (d) go down the street

(ii) State whether the following statement is True or False:

The poet was delighted to watch the ball bouncing down the street into the water.

(iii) The poet repeats the word 'What' in order to

(iv) There is no use to say 'O there are other balls' indicates that the poet feels that it would be to console the boy.

- (a) helpful (b) futile (c) easy (d) shameful

(v) 'What is the boy now, who has lost his ball'

Which feeling is expressed in this line?

- (a) regret (b) cheer (c) despair (d) thrill

5. Short Answer Type Questions:

a) What are the raindrops compared to and why?

b) Why did Hari Singh smile in his most appealing way towards the end of the story?

c) What excuses did Mrs. Pumphrey make about Mr. Herriot's advice?

d) Motivation influences our willingness to overcome challenges and eventually succeed. How does the young seagull in 'Two stories about flying' demonstrate this? Discuss.

e) What does the tiger in the zoo do at night?

6. Long Answer Type Questions:

a) What distinguishes the portrayal of the tiger in the poem 'A Tiger in the Zoo' from the depiction of the tiger in the poem 'How to Tell Wild Animals'?

b) In the story 'A Triumph of Surgery' a wealthy woman's nonsensical behaviour is depicted. Do you think such individuals are merely displaying foolishness or could their actions potentially, inflict harm on others? Support your answer from the text.

c) Examine the role of nature in the poems 'Dust of Snow' and 'Fire and Ice'.

Mathematics (Competency-Based Learning Tasks)

Instructions:

- Complete all activities neatly in a separate notebook/file.
- Show proper steps, reasoning, diagrams, and calculations.
- Use real-life examples wherever possible.
- Attempt competency-based questions with logical explanations.
- Prepare charts/models creatively wherever mentioned.

Theme 1: Budget Planning and Profit-Loss

- Prepare a monthly family budget using percentages and pie charts.
- Calculate savings, profit, loss, and discount in shopping situations.
- Competency Question: A shopkeeper gives 15% discount on a bag marked ₹2400 and still earns 10% profit. Find the cost price.

Theme 2: Banking and Compound Interest

- Compare interest earned in different banks for fixed deposits.
- Use compound interest formula to calculate growth of money.
- Competency Question: Find the amount after 2 years on ₹25,000 at 8% p.a. compounded annually.

Theme 3: Sports Statistics

- Collect scores of your favourite sports team/player.
- Find mean, median, mode, and represent data graphically.
- Competency Question: Compare performance consistency using statistics.

Theme 4: Geometry in Architecture

- Identify circles, triangles, and polygons in buildings.
- Draw and label geometrical structures from your locality.
- Competency Question: Calculate area and perimeter of a floor design.

Theme 5: Surface Areas and Volumes

- Observe objects like cans, cones, tanks, and boxes.
- Calculate volume and surface area of household objects.
- Competency Question: Find the capacity of a cylindrical water tank.

Theme 6: Probability Through Games

- Use coins, dice, and cards to study probability.

- Record outcomes and compare experimental probability with theoretical probability.
- Competency Question: A die is thrown once. Find the probability of getting a prime number.

Theme 7: Linear Equations in Real Life

- Frame word problems based on shopping or travel.
- Solve pair of linear equations graphically and algebraically.
- Competency Question: Two pens and three notebooks cost ₹96 while three pens and two notebooks cost ₹84. Find the cost of each.

Theme 8: Quadratic Equations Applications

- Create situations involving area, speed, and product dimensions.
- Solve quadratic equations using factorization and formula method.
- Competency Question: The product of two consecutive integers is 306. Find the integers.

Theme 9: Coordinate Geometry and Maps

- Prepare a simple map of your locality using coordinate axes.
- Mark important locations and calculate distances.
- Competency Question: Find distance between points A(2,3) and B(8,11).

Theme 10: Mathematics in Environment

- Collect rainfall or temperature data for 10 days.
- Represent the data using bar graph or histogram.
- Competency Question: Compare average temperature changes using graphs.

SOCIAL SCIENCE

History

Chapter 1: The Rise of Nationalism in Europe

Key Terms: Nationalism, Nation-State, Liberalism, Conservatism, Romanticism, Zollverein, Unification of Germany and Italy, Treaty of Vienna, Frankfurt Parliament.

Assignment Tasks:

1. Create a timeline highlighting major events leading to the unification of Germany and Italy.
2. Write a short essay on the role of Giuseppe Mazzini in promoting nationalism in Europe.

Previous Year Questions:

- *"Explain the role of language in developing nationalist sentiments in Europe."* (CBSE 2023)
- *"Describe the process of unification of Italy."* (CBSE 2024)
- *"How did the Treaty of Vienna (1815) come into being?"* (CBSE 2025)

Chapter 2: The Rise of Nationalism in India

Key Terms: Swadeshi Movement, Non-Cooperation Movement, Civil Disobedience Movement, Rowlatt Act, Jallianwala Bagh Massacre, Khilafat Movement, Satyagraha, Simon Commission.

Assignment Tasks:

1. Prepare a report on the impact of the Jallianwala Bagh massacre on the Indian national movement.
2. Design a poster promoting the Swadeshi Movement, emphasizing the use of indigenous goods.

Previous Year Questions:

- *"Explain the significance of the Non-Cooperation Movement."* (CBSE 2023)
- *"How did the Civil Disobedience Movement affect the British economy?"* (CBSE 2024)
- *"Discuss the role of the Simon Commission in the Indian freedom struggle."* (CBSE 2025)

Chapter 3: Print Culture and the Modern World

Key Terms: Manuscripts, Gutenberg Printing Press, Vernacular Press Act, Penny Magazines, Print Revolution, Censorship.

Assignment Tasks:

1. Create a collage showcasing the evolution of print culture from manuscripts to digital media.
2. Write an article on the role of print culture in spreading reformist ideas in 19th-century India.

Previous Year Questions:

- *"Discuss the impact of print culture on the growth of nationalism in India."* (CBSE 2023)
- *"How did the print revolution influence the reading habits of people?"* (CBSE 2024)
- *"Explain the role of print in the spread of religious reforms in India."* (CBSE 2025)

Geography

Chapter 1: Resources and Development

Key Terms: Renewable and Non-Renewable Resources, Resource Planning, Land Degradation, Soil Erosion, Conservation.

Assignment Tasks:

1. Prepare a case study on resource planning in India, highlighting its importance.
2. Create a mind map showing different types of resources and their sustainable management.

Previous Year Questions:

- *"Explain the need for resource planning in India."* (CBSE 2023)
- *"What are the causes and consequences of land degradation?"* (CBSE 2024)
- *"Discuss the measures to conserve soil."* (CBSE 2025)

Chapter 2: Agriculture

Key Terms: Kharif and Rabi Crops, Intensive and Extensive Farming, Plantation Agriculture, Green Revolution, Organic Farming.

Assignment Tasks:

1. Create a chart comparing traditional and modern farming methods.
2. Write a report on the impact of the Green Revolution on Indian agriculture.

Previous Year Questions:

- *"Describe the features of plantation agriculture."* (CBSE 2023)
- *"What are the challenges faced by Indian farmers today?"* (CBSE 2024)
- *"Explain the importance of organic farming in sustainable agriculture."* (CBSE 2025)

Chapter 3: Forest and Wildlife Resources

Key Terms: Biodiversity, Deforestation, Conservation, Biosphere Reserves, Endangered Species, Chipko Movement.

Assignment Tasks:

1. Design a poster promoting wildlife conservation.
2. Write an essay on the importance of forest resources in maintaining ecological balance.

Previous Year Questions:

- *"Explain the factors responsible for the depletion of flora and fauna."* (CBSE 2023)
- *"What steps have been taken by the government to conserve forest and wildlife resources?"* (CBSE 2024)
- *"Discuss the role of community participation in forest conservation."* (CBSE 2025)

Chapter 4: Water Resources

Key Terms: Multipurpose River Projects, Rainwater Harvesting, Watershed Management, Dams, Water Scarcity.

Assignment Tasks:

1. Create a model demonstrating rainwater harvesting techniques.
2. Prepare a presentation on the advantages and disadvantages of multipurpose river projects.

Previous Year Questions:

- *"Discuss the importance of water conservation in India."* (CBSE 2023)
- *"Explain the causes of water scarcity in India."* (CBSE 2024)
- *"Describe the role of dams in water resource management."* (CBSE 2025)

Civics

Chapter 1: Gender, Religion, and Caste

Key Terms: Sexual Division of Labour, Feminist Movements, Communalism, Secularism, Caste Hierarchy, Affirmative Action.

Assignment Tasks:

1. Write an article on the role of women in Indian politics.
2. Conduct a survey in your locality to understand the impact of caste on social interactions and present your findings.

Previous Year Questions:

- *"How does communalism pose a threat to Indian democracy?"* (CBSE 2023)
- *"Explain the role of caste in Indian politics."* (CBSE 2024)
- *"Discuss the impact of gender inequality on the political participation of women."* (CBSE 2025)

Chapter 2: Political Parties

Key Terms: National and Regional Parties, Multi-Party System, Coalition Government, Party Symbols, Election Commission.

Assignment Tasks:

1. Create a comparative chart of major national political parties in India, including their symbols and ideologies.
2. Write a report on the role of regional parties in Indian politics.

Previous Year Questions:

- *"What are the challenges faced by political parties in India?"* (CBSE 2023)
- *"Explain the necessity of political parties in a democratic country."* (CBSE 2024)
- *"Discuss the role of opposition parties in a democracy."* (CBSE 2025)

Economics

Chapter 1: Money and Credit

Key Terms: Barter System, Formal and Informal Credit, Collateral, Self-Help Groups, Creditworthiness, Terms of Credit.

Assignment Tasks:

1. Prepare a flowchart showing the functioning of Self-Help Groups in rural areas.
2. Write a case study on how access to credit can improve the livelihood of a small farmer.

Previous Year Questions:

- *"Differentiate between formal and informal sources of credit."* (CBSE 2023)
- *"Explain the role of credit in the development of a country."* (CBSE 2024)
- *"Discuss the impact of high-interest loans on the rural economy."* (CBSE 2025)

Note: Students are encouraged to refer to their NCERT textbooks and class notes for detailed explanations. The assignments aim to reinforce understanding and application of concepts. Please ensure all tasks are completed and submitted by the due date specified .

- **Revise the map work of chapters of History and Geography.**

Science

CHEMISTRY

- When the solution of substance X is added to a solution of potassium iodide, then a yellow solid separates out from the solution.
 - What do you think substance X is likely to be?
 - Name the substance which the yellow solid consists of.
 - Which characteristic of chemical reactions is illustrated by this example?
 - Write a balanced chemical equation for the reaction which takes place. Mention the physical states of all the reactants and products involved in the chemical equation.
- When water is added gradually to a white solid X, a hissing sound is heard and a lot of heat is produced forming a product Y. A suspension of Y in water is applied to the walls of a house during white washing. A clear solution of Y is also used for testing carbon dioxide gas in the laboratory.
 - What could be solid X? Write its chemical formula.
 - What could be product Y? Write its chemical formula.
 - What is the common name of the solution of Y which is used for testing carbon dioxide gas?
 - Write chemical equation of the reaction which takes place on adding water to solid X.
 - Which characteristic of chemical reactions is illustrated by this example?
- When metal X is treated with a dilute acid Y, then a gas Z is evolved which burns readily by making a little explosion.
 - Name any two metals which can behave like metal X.
 - Name any two acids which can behave like acid Y.
 - Name the gas Z.
 - Is the gas Z lighter than or heavier than air?
 - Is the reaction between metal X and dilute acid Y exothermic or endothermic?
 - By taking a specific example of metal X and dilute acid Y, write a balanced chemical equation for the reaction which takes place. Also indicate physical states of all the reactants and products.
- A solid substance P which is very hard is used in the construction of many buildings, especially flooring. When substance P is heated strongly, it decomposes to form another solid Q and a gas R is given out. Solid Q reacts with water with the release of a lot of heat to form a substance S. When gas R is passed into a clear solution of substance S, then a white precipitate of substance T is formed. The substance T has the same chemical composition as starting substance P.
 - What is substance P? Write its common name as well as chemical formula.
 - What is substance Q?
 - What is gas R?
 - What is substance S? What is its clear solution known as?
 - What is substance T? Name any two natural forms in which substance T occurs in nature.
- A solid substance P which is very hard is used in the construction of many buildings, especially flooring. When substance P is heated strongly, it decomposes to form another solid Q and a gas R is given out. Solid Q reacts with water with the release of a lot of heat to form a substance S. When gas R is passed into a clear solution of substance S, then a white precipitate of substance T is formed. The substance T has the same chemical composition as starting substance P.
 - What is substance P? Write its common name as well as chemical formula.
 - What is substance Q?
 - What is gas R?
 - What is substance S? What is its clear solution known as?
 - What is substance T? Name any two natural forms in which substance T occurs in nature.
- A silvery-white metal X taken in the form of ribbon, when ignited, burns in air with a dazzling white flame to form a white powder Y. When water is added to powder Y, it dissolves partially to form another substance Z.
 - What could metal X be?
 - What is powder Y?
 - With which substance metal X combines to form powder Y?
 - What is substance Z? Name one domestic use of substance Z.
 - Write a balanced chemical equation of the reaction which takes place when metal X burns in air to form powder Y.
- A metal X forms a salt XSO_4 . The salt XSO_4 forms a clear solution in water which reacts with sodium hydroxide solution to form a blue precipitate Y. Metal X is used in making electric wires and alloys like brass.
 - What do you think metal X could be?
 - Write the name, formula and colour of salt XSO_4 .
 - What is the blue precipitate Y?
 - Write a chemical equation of the reaction which takes place when salt XSO_4 reacts with sodium hydroxide solution. Give the state symbols of all the reactants and products which occur in the above equation.
- The metal M reacts vigorously with water to form a solution S and a gas G. The solution S turns red litmus to blue whereas gas G, which is lighter than air, burns with a pop sound. Metal M has a low melting point and it is used as a coolant in nuclear reactors.
 - What is metal M?
 - What is solution S? Is it acidic or alkaline?
 - What is gas G?
 - Write a balanced chemical equation for the reaction which takes place when metal M reacts with water.
 - Is this reaction exothermic or endothermic?
- When a mixture of gases X and Y is compressed to 300 atm pressure and then passed over a catalyst consisting of a mixture of zinc oxide and chromium oxide heated to a temperature of 300°C , then an organic compound Z having the molecular formula CH_4O is formed. X is a highly poisonous gas which is formed in appreciable amounts when a fuel burns in a limited supply of air; Y is a gas which can be made by the action of a dilute acid on an active metal; and Z is a liquid organic compound which can react with sodium metal to produce hydrogen gas.

a) What are X, Y and Z?

b) Write a balanced chemical equation of the reaction which takes place when X and Y combine to form Z. Indicate the conditions under which the reaction occurs.

PHYSICS

1. A concave mirror produces three times enlarged virtual image of an object placed at 10 cm in front of it. Calculate the radius of curvature of the mirror.
2. A bright object 50 mm high stands on the axis of a concave mirror of focal length 100 mm and at a distance of 300 mm from the concave mirror. How big will the image be?
3. How far should an object be placed from the pole of a converging mirror of focal length 20 cm to form a real image of the size exactly $\frac{1}{4}$ th the size of the object?
4. At what distance from a concave mirror of focal length 10 cm should an object be placed so that:
(a) its real image is formed 20 cm from the mirror? (b) its virtual image is formed 20 cm from the mirror?
5. If a concave mirror has a focal length of 10 cm, find the two positions where an object can be placed to give, in each case, an image twice the height of the object.
6. A mirror forms an image which is 30 cm from an object and twice its height.
(a) Where must the mirror be situated? (b) What is the radius of curvature?
(c) Is the mirror convex or concave?
7. Draw image formation by spherical mirror.

विषय - हिंदी

1. 'सूरदास के पद' का भावार्थ लिखिए और याद कीजिए।
2. 'सूरदास के पद' पाठ से संबंधित सभी प्रश्नों को याद कीजिए और लिखिए।
3. 'राम-लक्ष्मण-परशुराम संवाद' पाठ का भावार्थ लिखिए और याद कीजिए।
4. 'राम-लक्ष्मण-परशुराम संवाद' पाठ से संबंधित सभी प्रश्नों को लिखिए और याद कीजिए।
5. 'आत्मकथ्य' पाठ से संबंधित सभी प्रश्नों को याद कीजिए लिखिए।
6. 'नेताजी का चश्मा' पाठ से संबंधित सभी प्रश्नों को याद कीजिए लिखिए।
7. 'बालगोविन भगत' पाठ से संबंधित सभी प्रश्नों को याद कीजिए और लिखिए।
8. 'लखनवी अंदाज' पाठ से संबंधित सभी प्रश्नों को याद कीजिए और लिखिए।
9. 'ग्लोबल वार्मिंग' - एक वैश्विक समस्या विषय पर लगभग 150 शब्दों में एक अनुच्छेद लिखिए।
10. 'सोशल मीडिया' वरदान या अभिशाप विषय पर लगभग 120 शब्दों में एक अनुच्छेद लिखिए।
11. आपको अपनी कोई पुरानी कार बेचनी है, उसके लिए एक आकर्षक विज्ञापन तैयार कीजिए।
12. अलंकार एवं उसके भेद को चार्ट पेपर पर बनाइए।
13. पद परिचय - प्रत्येक व्याकरणिक कोटि के 10-10 उदाहरण लिखिए।
14. रचना के आधार पर वाक्य भेद लिखिए। प्रत्येक भेद के 10-10 उदाहरण भी लिखिए।