Mother's International Academy

Affiliated to CBSE Delhi (10+2)

A Place To Grow

Holiday – Homework (Session – 2026 – 2027)

Std.: IX

Theme: Pollution and Measures to Control It

English

1. Introduction (Writing Task – Paragraph)

Write a **short paragraph (120–150 words)** on:
"Pollution: A Growing Threat to Human Life"
Include:

- Meaning of pollution
- Types (air, water, soil, noise)
- Why it is increasing

2. Creative Writing

Write an **article (150–180 words)** for a school magazine on:
"How Can We Control Pollution in Our Daily Life?"
Include:

- Causes of pollution
- Effects on health and environment
- Practical solutions

3. Poster Making

Design a **poster on A4 sheet** on:
"Say No to Pollution"
Include:

- Slogans (e.g., *"Go Green, Keep It Clean"*)
- Drawings (trees, vehicles, factories, rivers)
- Awareness message

4. Slogan Writing

Write **5 powerful slogans** on pollution control, for example:

- "Plant trees, save the earth"
- "Reduce, Reuse, Recycle"

5. Grammar Integration

Rewrite the sentences:

1. We must reduce pollution. *(Use modal verb: "should")*
2. People are cutting trees rapidly. *(Change into passive voice)*
3. Pollution harms life. *(Expand into complex sentence)*

6. Reading & Comprehension

Read the situation:
"A city is suffering from severe air pollution due to increasing vehicles and factories."
Answer:

1. What are the causes of pollution?
2. Suggest two immediate solutions.
3. What role can students play in reducing pollution?

7. Project

Collect information from **Science + Geography + English**:

- Effects of pollution on climate change
- Role of forests in controlling pollution
- Human responsibility

Present it in **a 1–2 page project file with headings and diagrams.**

Hindi

- विभिन्न प्रकार के प्रदूषणों का चित्र ए-4 साइज पेपर पर चिपकाकर उससे बचाव के उपाय पाँच पंक्तियों में लिखें।
- गंगा पाठ्य पुस्तक से पाठ - 1, 2 और 3 के सभी प्रश्नोत्तर याद कीजिए।
- हिन्दी व्याकरण की पाठ्यपुस्तक से 10-10 समानार्थी और मुहावरे कॉपी में लिखिए और याद कीजिए।

Chemistry

Section A – Very Short Answer Questions

1. What is a mixture?
2. Define homogeneous mixture.
3. Define heterogeneous mixture.
4. What is a solution?
5. Name the solvent in salt water solution.
6. What is solute?
7. Define suspension.
8. What is colloid?
9. Give one example of a colloidal solution.
10. What is the Tyndall effect?

Section B – Short Answer Questions

1. Differentiate between pure substance and mixture.
2. Write any three properties of a solution.
3. Explain the properties of suspension.
4. What are colloids? Mention their characteristics.
5. Differentiate between true solution, suspension, and colloid.
6. What is concentration of a solution?
7. Explain saturated and unsaturated solutions.
8. Why can't we see particles in a true solution?

Section C – Long Answer Questions

1. Explain different types of mixtures with examples.
2. Describe various methods of separation of mixtures.
3. Explain evaporation, filtration, and distillation with diagrams.
4. Write the differences between:

- Solution and suspension
- Colloid and suspension
- Homogeneous and heterogeneous mixtures

Section D – Match the Following

1. Filtration —	Separating insoluble solids
2. Evaporation —	Obtaining salt from seawater
3. Centrifugation —	Separating butter from curd
4. Sublimation —	Separating camphor from salt

Section E – Assertion and Reason

1. **Assertion:** A true solution does not scatter light.
Reason: Particles of a true solution are very small.
2. **Assertion**: Suspension is unstable.
Reason: Particles settle down on standing.
3. **Assertion**: Colloids show Tyndall effect.
Reason: Their particles are large enough to scatter light.

Write down this question answer in Chemistry fair notebook

Activity Work

1. Prepare a solution of sugar and water and observe its properties.
2. Make a chart showing:

- Solution

- Suspension
- Colloid

3. Collect pictures of methods used for separation of mixtures.

Project Work

Topic: "Methods of Separation Used in Daily Life"

Include:

- Introduction
- Different separation methods
- Uses in homes and industries
- Diagrams/Pictures
- Conclusion

Viva Questions

1. What is the difference between solute and solvent?
2. Why is milk called a colloid?
3. Which method is used to separate sand from water?
4. What is sedimentation?
5. Name one method used to separate salt from seawater.

Biology

Answer the following questions in short (Use your Biology fair notebook to write down the answer sheet)

1. Why are cells called the basic structural and functional units of life? Explain with one example from plants or animals.
2. A raisin kept in water overnight becomes swollen. Explain this observation using the concept of osmosis.
3. A scientist observed two cells under a microscope. One cell had a cell wall and large vacuole, while the other lacked both structures.
   a) Identify both types of cells.
   b) Which cell is more rigid and why?
   c) Which structure is responsible for maintaining turgidity in the plant cell?
4. Why is the plasma membrane called selectively permeable? How is this property important for the survival of the cell?
5. A person accidentally touches a hot object and quickly pulls back the hand. How does the nucleus help the cell respond to this situation?
6. A student observed that onion peel cells looked larger and more regular in shape than cheek cells.
   a) Why do onion peel cells have a fixed shape?
   b) Which structure is absent in cheek cells?
   c) Name one similarity between both cells.
7. Mitochondria are present in large numbers in muscle cells of athletes. Explain the reason behind this observation.
8. A leaf kept in darkness for several days turned pale and weak.
   a) Which cell organelle was affected the most?
   b) Why could the leaf not remain green?
   c) How did this affect food preparation in the plant?

Social Science

❖ **Project:-**

- Conduct a case study on a polluted river, city and industrial area and analyse the steps taken for improvement by the government and communities paste the relevant pictures on A4 sheet paper.
- Revise all the taught chapters with help of given notes and shared PDFs.

Information Technology

- Write the answers in fair copy
  Task 1. Write all the textbook questions till Communication skill chapter
  Task 2. Draw a **diagram/chart** of the **Communication Process**
  Include:
- Sender
- Message
- Encoding
- Channel
- Receiver
- Decoding
  Feedback
- 📌 *Make it colorful and use real-life examples*
  Task 3: Make a table in your notebook:
- **Type Definition Example**
- Verbal
- Visual
- *Fill all columns properly*
- Task 4): Observe people around you (home/society) and write:
- 3 examples of **facial expressions**
- 3 examples of **gestures**
- 2 examples of **posture**
- 2 examples of **eye contact**
- *Explain what each example shows (emotion/meaning)*

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MATHEMATICS (041 - PYQ's)

OBJECTIVE TYPE [Marks:0X0 = 0]

Question No: 1

During a Math class, the teacher instruct to Riya to insert a rational and an irrational number between 5 and 7 . Which of the following cannot be an answer?

(a) 6 (b) $\frac{7}{3}$ (c) $\sqrt{35}$ (d) 7.5

Question No: 2

If $\sqrt{5} = 2.236$, then $\frac{1}{\sqrt{5}}$

(a) 4.472 (b) 0.4472 (c) 0.04472 (d) 44.72

Question No: 3

If $4^x - 4^{x-1} = 24$, then $(2x)^x$ equals

(a) 125 (b) $25\sqrt{5}$ (c) $5\sqrt{5}$ (d) $\sqrt{5}$

Question No: 4

$\sqrt{10} \times \sqrt{15}$ is equal to:

(a) $6\sqrt{5}$ (b) $5\sqrt{6}$ (c) $\sqrt{25}$ (d) $10\sqrt{5}$

ASSERT & REASONING [Marks:0X0 = 0]

Question No: 5

Assertion (A): The sum of two irrational number $8 - \sqrt{3}$ and $4 + \sqrt{3}$ is a rational number.

Reasion (R): The sum of two irrational numbers is always an irrational number.

(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.

SHORT ANSWER TYPE [3M] [Marks:0X0 = 0]

Question No: 6

Show that $\frac{1}{1+m^{x-y}} + \frac{1}{1+m^{y-x}} = 1$.

Question No: 7

Express $0.4\overline{7}$ in the $\frac{p}{q}$ form, where p and q are integers and $q \neq 0$.

Question No: 8

In maths class, the teacher gave his students an expression $\frac{\left[(81)^{3.6} \times (9)^{2.7}\right]^2}{(81)^{8.4} \times 27}$ and asked them to find the first multiple of the answer obtained. What is first multiple?

Question No: 9

Evaluate the following:

(A) $32^{\frac{1}{5}}$ (B) $\frac{11^{\frac{1}{2}}}{11^{\frac{1}{4}}}$ (C) $(125)^{\frac{-1}{3}}$ (D) $\left(\frac{1}{3^3}\right)^7$

LONG ANSWER TYPE [Marks:0X0 = 0]

Question No: 10

If $a = 5 + 2\sqrt{6}$ and $b = \frac{1}{a}$, then what will be the value of $a^2 + b^2$?

Question No: 11

Represent $\sqrt{(9.3)}$ on number line and also write the step of construction.

MATHEMATICS (041 - PYQ's)

OBJECTIVE TYPE [Marks:0X0 = 0]

Question No: 1

The polynomial $(x - a)$ is a factor of the polynomial $x^4 - 2x^2 + kx + k$, where k is a constant. Which of these is the correct relation between a and k ?

(a) $k = \frac{a^2(2-a^2)}{a+1}$ (b) $k = \frac{a^2(2+a^2)}{1+a}$

(c) $k = \frac{a^2(2-a^2)}{1-a}$ (d) $k = \frac{a^2(2+a^2)}{1-a}$

Question No: 2

Which of the following option is a zero of the polynomial $3x^2 + 11x + 8$?

(a) $-\frac{8}{3}$ (b) $\frac{8}{3}$ (c) -3 (d) -2

Question No: 3

If $x + y = 14$ and $xy = 24$, then the value of $x^2 - xy + y^2$ is:

(a) 196 (b) 124 (c) -142 (d) 72

Question No: 4

If $x^2 + kx + 6 = (x + 2)(x + 3)$, for all x, then the value of k is

(a) 1 (b) 3 (c) -1 (d) 5

ASSERT & REASONING [Marks:0X0 = 0]

Question No: 5

Assertion (A): The value of $x^2 + y^2 + 4z^2 + 2xy + 4yz + 4zx$, when $(x + y) = 5$ and $z = 3$ is 121 .

Reason (R): If $x + \frac{1}{x} = 3$, then $x^2 + \frac{1}{x^2} = 7$.

(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.

CASE STUDY QUESTIONS [Marks:0X0 = 0]

Question No: 6

Sonu's elder sister gave him some money to buy oranges from the fruit market at the rate of $p(y) = y^2 - 5y + 6$, where, α, β are the zeroes of $p(y)$.

(A) Find α and β where $\alpha > \beta$.

(B) Find the value of $\alpha + \beta + \alpha\beta$ and $p(5)$.

(C) Find the value of $\alpha^2 - \beta^2$.

SHORT ANSWER TYPE [3M] [Marks:0X0 = 0]

Question No: 7

If $(x-2)$ is a factor of the polynomial $x^4 - 2x^3 + ax - 1$, find the value of a.

Question No: 8

Find the value of k, if $x-1$ is a factor of $p(x)$ in case: $p(x) = kx^2 - \sqrt{2}x + 1$.

Question No: 9

If $x^{201} + 201$ is divided by $x-1$, what is the remainder?

Question No: 10

If $p(x) = 2x^3 - 6x^2 + ax + a$ and $(x+2)$ is a factor of $p(x)$, then find a.

LONG ANSWER TYPE [Marks:0X0 = 0]

Question No: 11

If $x + \frac{1}{x} = 5$, find the value of $x^4 + \frac{1}{x^4}$.

Question No: 12

Two brothers Ashish and Amit wanted to start a business together. They decided to share their amount depending upon the variable expenditure. The amount of two partners is given by the expression $12x^2 + 11x - 15$, which is the product of their individual share factors.

(A) Find total expenditure of Ashish and Amit when $x = ₹100$.

(B) Find individual share factor of Ashish and Amit in terms of x.

(C) Find the value of x if their shares are equal.

MATHEMATICS (041 - PYQ's)

OBJECTIVE TYPE [Marks:0X0 = 0]

Question No: 1

A point is at a distance of 3 units from the x-axis and 7 units from the y-axis. Which of the following may be the co-ordinates of the point?

(a) $(4, 5)$ (b) $(0, 0)$ (c) $(7, 3)$ (d) $(3, 7)$

Question No: 2

Match the following

(a) Point (-4, 6) lies in the	(i) III Quadrant
(b) A point both of whose coordinates are negative will lie in	(ii) I and IV quadrants
(c) Point (4, -6), (2, -2),(3, -4), (-3, -4) lies in the	(iii) II Quadrant
(d) Point (4, 6), (4, -6) lies in the	(iv) III and IV Quadrant

Question No: 3

Ordinate of all points on the x-axis is

(a) 1 (b) 2 (c) 0 (d) any number

Question No: 4

The equation of x -axis is

(a) $x = 0$ (b) $y \neq x$ (c) $y = 0$ (d) $y = x$

ASSERT & REASONING [Marks:0X0 = 0]

Question No: 5

Assertion: A point whose abscissa is 3 and ordinate is -5 lies in IV quadrant.

Reason (R): Points of the type (+, -) lie in the I quadrant.

(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)

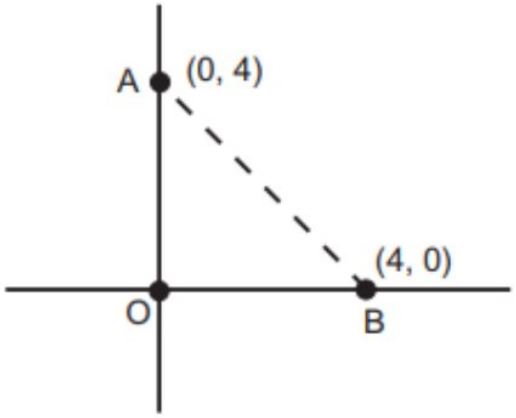
(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

SHORT ANSWER TYPE [3M] [Marks:0X0 = 0]

Question No: 6

In the given figure, find the height of the triangle OAB.



Question No: 7

Which of the following points lie on the y-axis?

$A(1, 1), B(3, 0), C(0, 3), D(0, 0), E(-5, 0),$
$F(0, -1), G(9, 0), H(0, -8)$

Question No: 8

A city has two main roads which cross each other at the centre of the city. These two roads are along the North-South direction and East-West direction.

All the other streets of the city run parallel to these roads and are 200 m apart. There are 5 streets in each direction. Using $1\ \text{cm} = 100\ \text{m}$, draw a model of the city on your notebook to represent the roads/streets by single lines.

There are many cross-streets in your model. A particular cross-street is made by two streets, one running in the North-South direction and another in the East-West direction. Each cross-street is referred to in the following manner: If the 2 street running in the North-South direction and 5 in the East-West direction meet at some crossing, then we will call this cross-street $(2, 5)$. Using this convention, find:

(A) How many cross-streets can be referred to as $(4, 3)$?

(B) How many cross-streets can be referred to as $(3, 4)$?

Question No: 9

Plot the following points and check whether these are collinear or not.

(A) $(1, 3), (-1, -1), (-2, 2)$ (B) $(1, 1), (2, -3), (-1, -2)$ (C) $(0, 0), (2, 2), (5, 5)$

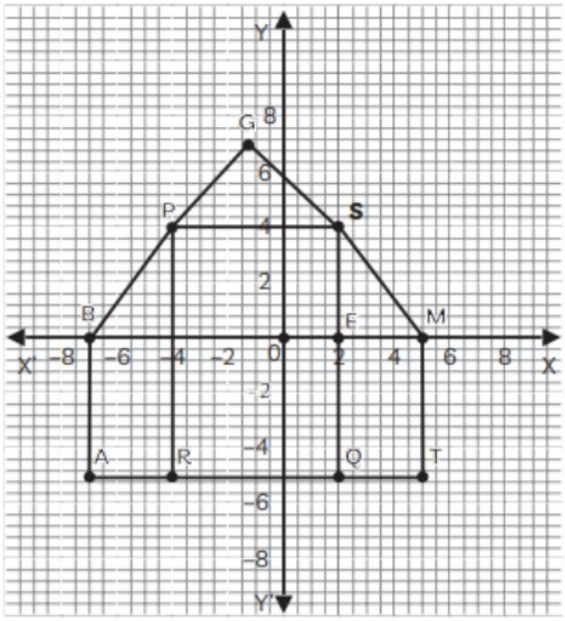
LONG ANSWER TYPE [Marks:0X0 = 0]

Question No: 10

Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the third quadrant.

Question No: 11

Study the figure and answer the following questions.



(A) Find the abscissa of G.

(B) If $\mathrm{P}(a - 6, b - 1)$, then find $a^2 + b^2$.

(C) Find the distance of AR along x-axis.

(D) Find the value of SM.

(E) Find the ordered pair of S.

SCIENCE (086-PYQ'S)

CASE STUDY QUESTIONS [Marks:0X0 = 0]

Question No: 1

Raza and his brother Suhail ride their bicycles to school. Both of them leave at the same time from home, yet they arrive at school at different times while using the same route.

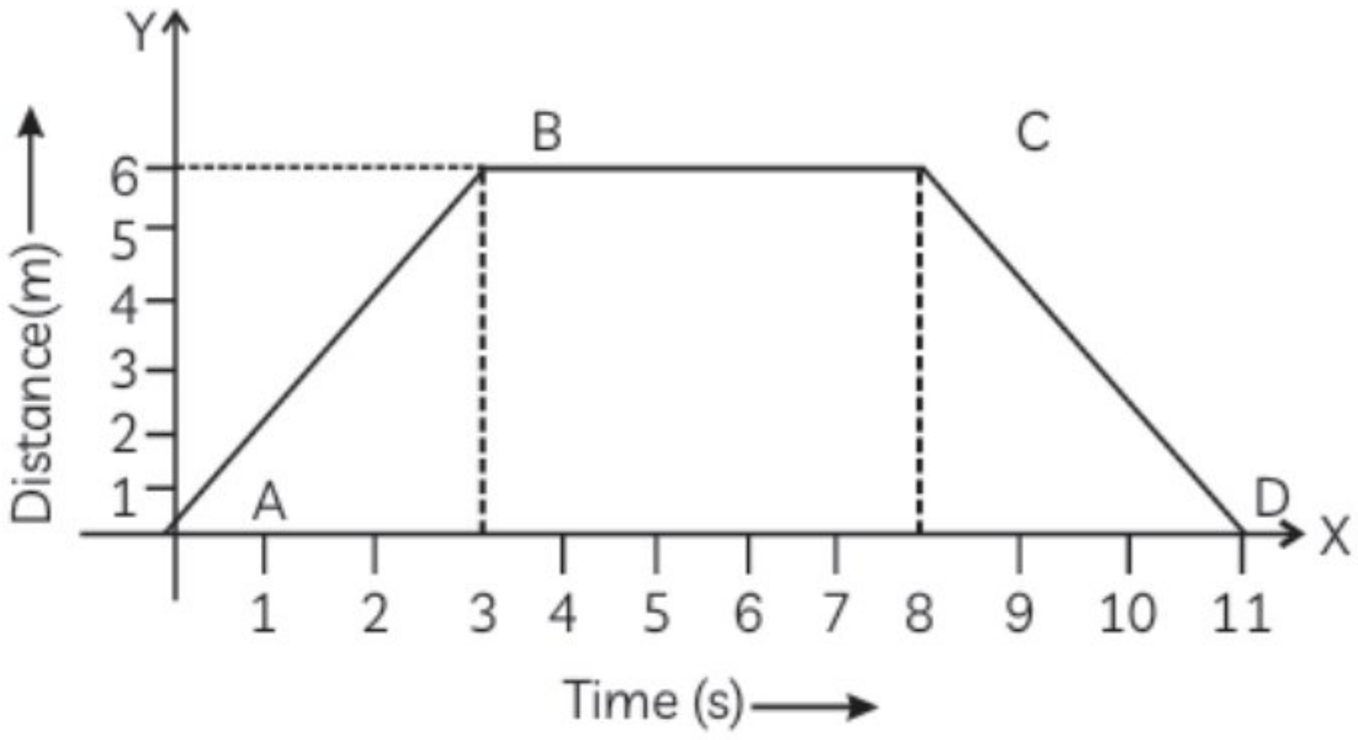
The distance they travelled at various periods is shown in the given table.

Time	*Distance travelled by Raza (km)*	*Distance travelled by Suhail (km)*
8:00 a.m.	*0*	*0*
8:05 a.m.	*1*	*0.8*
8:10 a.m.	*1.9*	*1.6*
8:15 a.m.	*2.8*	*2.3*
8:20 a.m.	*3.6*	*3*
8:25 a.m.	*-*	*3.6*

(A) Compare the average speed of Raza with that of Suhail.
(B) What will be Suhail's speed in the last 5 minutes of his ride?
(C) Who reaches school faster, Raza or Suhail?

Question No: 2

A monkey was moving at a steady speed from the ground on a tree towards some fruits. It then stays in the same position for some time for eating fruits and then returns from the tree to the ground at the same speed. A graph (given below) can be plotted with distance on the y-axis and time on the x-axis.



Distance-Time graph

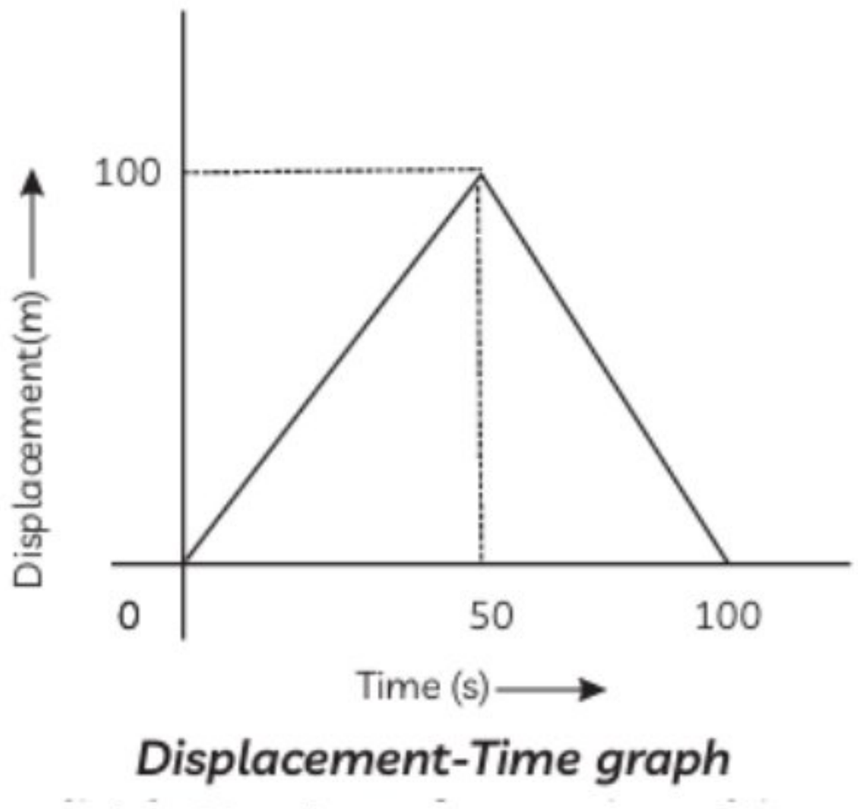
(A) Which portion of the graph represents that monkey moving away from the ground to the tree?
(a) AB (b) BC (c) CD (d) DA
(B) Name the points on the graph which is 6 metres away from the ground of the tree.
(a) Points A and D (b) Points B and C (c) Points A and B (d) Points A and C
(C) What does the slope represent in the distance-time graph?
(a) Speed (b) Velocity (c) Average speed (d) Average velocity
(D) Which of the following statement(s) is/are correct regarding the motion of the monkey?
(I) Distance travelled by monkey is 12 m . (II) Displacement of monkey is 0 m .
(III) Displacement of monkey is 12 m . (IV) Distance travelled by monkey is 0 m .
Options:
(a) Only (I) (b) Only (II) (c) Both (I) and (II) (d) Both (III) and (IV)
(E) Assertion (A): The average velocity of an object can be calculated by applying the given formula.

$$\text{Average velocity} = \frac{\text{Initial velocity} + \text{Final velocity}}{2}$$

Reason (R): When the velocity of a body changes at a non-uniform rate, its average velocity is given by the arithmetic mean of initial velocity and final velocity for a given period of time.
(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.

SHORT ANSWER TYPE [3M] [Marks:0X0 = 0]

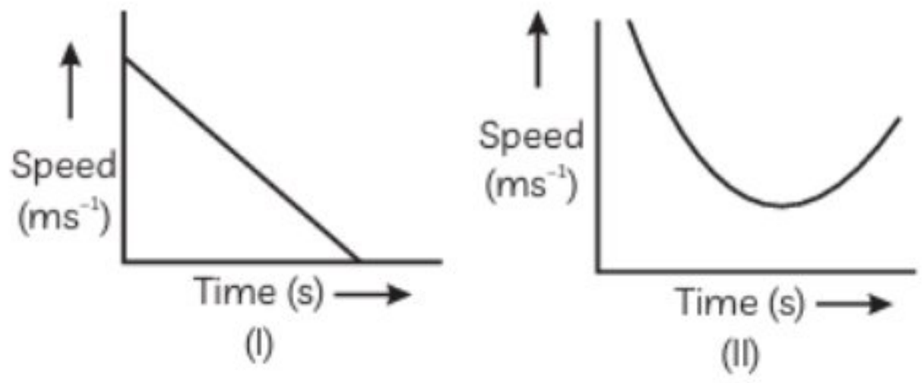
Question No: 3
A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement-time graph is shown in the following figure. Plot a velocity-time graph for the same.



Displacement-Time graph

Question No: 4

What do the graphs (I and II) shown in the figure indicate?



LONG ANSWER TYPE [Marks:0X0 = 0]

Question No: 5

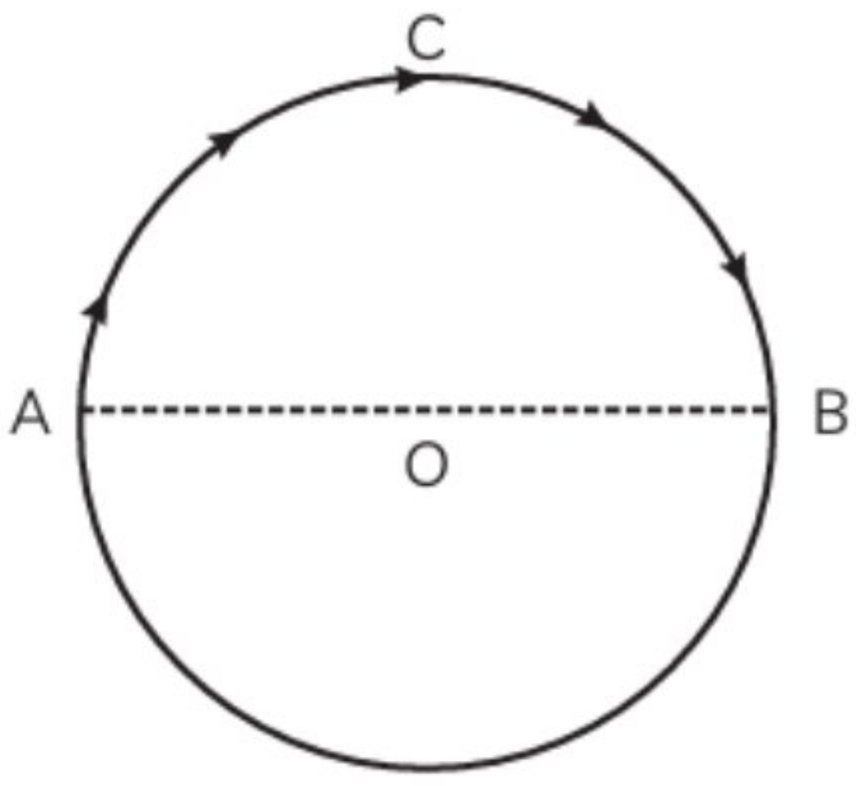
An insect moves along a circular path of radius 10 cm with a constant speed. It takes 1 min to move from a point on the path to the diametrically opposite point, find

(A) the distance covered,

(B) the speed,

(C) the displacement and

(D) the average velocity.



Question No: 6

State which of the following situations are possible and give an example for each of these.

(A) An object moving with a constant acceleration but with zero velocity

(B) An object moving in a certain direction with an acceleration in the perpendicular direction.

Std.: IX

Urdu

عنوان:۔ ''آلودگی اوراس پر قابو پانے کے اقدامات''

سرگرمی:۔ (A4 size paper) پر عنوان کے مطابق تصویر کشی کرتے ہوئے یا تصویر چسپا کر کے درج ذیل اہم نکات پر روشنی ڈالیں۔

مثلاً :۔ پلاسٹک کا کم استعمال، بجلی کی بچت، ماسک کا استعمال وغیرہ۔

نوٹ:۔ مزید نکات اور بھی شامل کیا جا سکتا ہے۔