

ST. MICHAEL'S SR. SEC. SCHOOL
3, PUSA ROAD, NEW DELHI
CLASS IX ASSIGNMENT MID – TERM
(2026 – 27)

ENGLISH:

- Q1. Explain how the narrator's role as a teacher transforms her relationship with her grandmother.
- Q2. Explain the use of figurative language in the poem 'Canvas of Soil' and its effect.
- Q3. Explain the life lessons this chapter teaches about patience, perseverance, and lifelong learning, with examples from the story.
- Q4. Why does the sound of the spatula seem like music to her?
- Q5. How does the detailed description of the potters' work reflect Sentila's deep interest and the artistic nature of pottery?
- Q6. What role do women play in the pankha -making tradition of Gujrat?
- Q7. What value is reflected in Ravi's offer to buy the Tamil newspaper for grandpa?
- Q8. Analyse how the poet portrays Bharat as a unique and peerless nation.
- Q9. Explain how the poet uses examples of everyday workers to communicate the theme of dignity of labour.
- Q10. Analyse how sensory experiences trigger the poet's memories of his mother.

HINDI:

1) निम्नलिखित प्रश्नों के उत्तर संक्षिप्त में लिखिए।

- लेखक निबंध लेखन के विषय में क्या क्या बातें पाठकों से साझा करता है ?
- रैदास के पदों का सार अपने शब्दों में लिखिए।
- हीरा और मोती मित्रता की अटूट मिसाल पेश करते हैं। पाठ में वर्णित घटनाओं के द्वारा बताइए।
- "क्या लिखूँ" पाठ के आधार पर लेखन के विषय में प्राप्त जानकारी का विवरण लिखिए।
- ताई के जीवन में मिठू उम्मीद की एक किरण के समान था। कैसे?

2) संज्ञा के भेद लिखिए -

- अकेलापन
- भक्ति
- चिंता
- सुडील

3) सर्वनाम पहचानकर भेद बताइए -

- १) मुझे एक किताब चाहिए।
- २) जब पढ़ोगे तब बढ़ोगे।
- ३) वह लोग पढ़ने गए हैं।
- ४) मैं खुद ही कपड़े लेकर आई।
- ५) सीता को उन्होंने बुलाया है।

4) निम्नलिखित वाक्यों में निपात रेखांकित करिए।

- तुमने ही यह काम किया है।
- उसने मुझे फोन तक नहीं किया।
- रात भर बारिश होती रही।
- फूल सा कोमल बच्चा।
- मोहन आज भी विद्यालय नहीं आया।

5) नीचे दिए गए उपसर्गों का प्रयोग करके दो-दो नए सार्थक शब्द लिखिए -

- अति-
- अनु-
- अप-
- परि-

6) अपने मित्र को समय के सदुपयोग तथा परीक्षाओं के लिए शुभकामनाएँ प्रदान करते हुए पत्र लिखिए।

7) 'पराधीन सपने हूँ सुख नहीं' विषय पर अनुच्छेद लिखिए।

8) मुहावरों का अर्थ लिखकर वाक्य बनाए।

- मन चंगा तो कठौती में गंगा
- अपने पैरों पर खड़ा होना

- मुँह मियाँ मिट्टू बनाना
- नाक कटना

9) प्रस्तुत चित्र का वर्णन लगभग 80 से 100 शब्दों में करिए।



10) निम्नलिखित पद की सप्रसंग व्याख्या किजिए।

अब कैसे छूटे राम रट लागी।

प्रभु जी तुम चंदन हम पानी, जाकी अंग-अंग बास समानी।

प्रभु जी तुम घन बन, हम मोरा, जैसे चितवत चंद चकोरा।

प्रभु जी तुम दीपक, हम बाती, जाकी जोति बरे दिन राती।

प्रभु जी तुम मोती, हम धागा, जैसे सोने मिलत सुहागा।

प्रभु जी तुम स्वामी, हम दासा, ऐसी भगति करे रेदासा।

MATHS:

A. Assertion – Reason Questions:

In the following questions (Q1 – Q8), the assertion – reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

(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.

1. Assertion (A): The points (3,0), (0,4) and (3,4) form a right triangle.

Reason (R): Among the three sides, two are along the axis and the longest side is the hypotenuse, so by the Baudhayana – Pythagoreas Theorem, the angle opposite to hypotenuse is a right angle.

2. Assertion (A): The number of tiles 1,3,5,7,9..... can be modelled by a quadratic polynomial.

Reason (R): The differences between consecutive terms are constant.

3. Assertion (A): A non – terminating recurring decimal is an irrational number.

Reason (R): Every rational number has either a terminating or a non-terminating recurring decimal expansion.

4. Assertion (A): The equation $(x + 3)^2 = x^2 + 6x + 9$ is an algebraic identity.
Reason (R): An equation that is true for every value of the variable is called an identity.
5. Assertion (A): All radii of the same circle are equal in length.
Reason (R): A circle is the set of all points in a plane that are at the same fixed distance from a fixed point.
6. Assertion (A): The length of a semicircular arc of radius 7cm is 22cm.
Reason (R): The length of a semicircular arc of radius r is given by πr .
7. Assertion (A): When two dice are rolled, the probability of getting two heads is $\frac{1}{4}$.
Reason (R): The sample space when two dice are rolled has 36 equally likely outcomes.
8. Assertion (A): The interest earned each year on a deposit at simple interest forms an AP.
Reason (R): At simple interest, the same amount of interest is added every year, a fixed addition each step gives an AP.

B. Multiple – Choice Questions:

9. Which statement is not true about a GP?
(a) No term of a GP can be zero. (b) A GP is $r = 1$ has all terms equal.
(c) A GP with $0 < r < 1$ has decreasing terms (d) A GP must have a positive common ratio.
10. Three coins are tossed simultaneously. The probability of getting at least two heads is:
(a) $\frac{1}{8}$ (b) $\frac{3}{8}$ (c) $\frac{1}{2}$ (d) $\frac{7}{8}$
11. By Heron's formula, the area of a triangle with sides 13cm, 14cm and 15cm is:
(a) 84cm^2 (b) 168cm^2 (c) 42cm^2 (d) 210cm^2
12. Which of the following statements is incorrect?
(a) The perpendicular bisector of any chord passes through the centre.
(b) The diameter is the longest chord of a circle.
(c) Two equal chords of a circle always lie at different distances from the centre.
(d) Equal chords subtend equal angles at the centre.
13. If $x+y = 7$ and $xy = 10$, the value of x^3+y^3 is:
(a) 133 (b) 147 (c) 160 (d) 170
14. Between any two distinct rational numbers, the number of rational numbers that exist is:
(a) Exactly 1 (b) Exactly 10 (c) Finite (d) Infinite
15. The line $y = ax + b$ passes through the origin. Then,

- (a) $a = 0$ (b) $b = 0$ (c) $a = b$ (d)
 $a+b=0$

16. The distance between the points P(0,-5) and Q(12,0) is:

- (a) 13 units (b) 17 units (c) 5 units (d) 12
units

C. Case – Study questions:

17. During a physics laboratory session, a teacher was deriving a simplified formula for a wave interference pattern. While working through the derivation, the teacher encountered the following rational algebraic expression:

$$\frac{(x^2 + x - 6)(x^2 - 7x + 12)}{(x^2 - 6x + 8)(x^2 - 9)}$$

The teacher explained to the students that such expressions, though appearing complex, can be greatly simplified by factorising each polynomial using algebraic identities and factor theorem. A student named Priya was asked to simplify this expression step by step as a part of her assignment. She recalled the rational expression is simplified by cancelling the common factors from the numerator and denominator, just like simplifying a numerical fraction.

Based on the given information answer the following questions:

- (i) Factor each of the four quadratics.
(ii) Cancel common factors to simplify the expressions.
(iii) Attempt either A or B.

A. State the values of x for which the simplification is valid (restrictions).

OR

B. Find the value of above expression when $x = 0$ and $x = 1$

18. In a kitchen, square tile of side 14cm has a circular emblem of the same diameter as the side of the tile (i.e., a circle inscribed in the square). The corners of the tile (outside the circle) are painted in a contrasting colour.

Based on the given information answer the following questions:

- (i) Find the area of the entire square tile.
(ii) Find the area of the inscribed circular emblem.
(iii) Attempt either A or B.

A. Find the total area of the four shaded corner regions outside the circle.

OR

B. Find the perimeter of square and circumference of the circle.

19. Prakul starts with one sheet of paper, then folds it in half repeatedly. After the first fold there are 2 layers, after the second fold 4 layers, after the third fold 8 layers, and so on. Let a_n denote the number of layers after the n th fold.

Based on the given information answer the following questions:

- (i) Write a recursive rule for a_n .
- (ii) Convert the recursive rule into an explicit rule for a_n .
- (iii) Attempt either A or B.

A. A sheet of paper of thickness 0.1mm is folded 10 times. Find:

- (a) the number of layers, (b) the resulting total thickness of the folded stack.

OR

B. Prakul continues folding the sheet until it has 20 folds. Find:

- (a) the number of layers after 20 folds,
- (b) if the original sheet is 0.1 mm thick, the total thickness of the folded stack after 20 folds.

D. Long – Answer questions:

Q20. Prove that the points A(1,7), B(4,2), C(-1,-1) and D(-4,4) are the vertices of a square. Show all four side – lengths and both diagonal lengths, and explain why the conditions taken together imply that ABCD is a square (not merely a rhombus or rectangle).

Q21. Let $p(x) = ax + b$ and $q(x) = cx + d$ be two linear polynomials such that:

- (A) $p(0) = 5$.
- (B) The polynomial $p(x) - q(x)$ cuts the x – axis at (3,0).
- (C) The sum $p(x) + q(x)$ is equal to $6x + 4$ for all real x . Find the two polynomials $p(x)$ and $q(x)$.

Q22. (A) Prove that $\sqrt{10}$ is irrational.

(B) Explain the exact step where the proof method falls for $\sqrt{4}$ and $\sqrt{3}$. Why does it fall?

Q23. Prove the theorem:

- (A) The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.
- (B) Chords equidistant from the centre of a circle are equal in length.

Q24. From a well shuffled deck of 52 cards, all the diamonds are removed. A card is then drawn at random from the remaining cards. Find the probability that the drawn card is:

- (A) An ace
- (B) A face card
- (C) A red card
- (D) A black king

(E) The queen of clubs

Q25. Analyse the statement: 'In a circle, of two unequal chords, the longer is always closer to the centre than the shorter.' Frame a proof using the Baudhyana – Pythagoras theorem and the perpendicular from centre property. Use a clear diagram.

SCIENCE:

Choose the correct option:

1. Which of the following is an example of homogeneous mixture?
 - a) Brass
 - b) Muddy water
 - c) Soil
 - d) All

2. Soda is an example of:
 - a) gas in a liquid mixture
 - b) liquid in a gas mixture
 - c) solid in a solid mixture
 - d) solid in a gas mixture

3. Which of the following processes is used to obtain pure water from a common salt solution?
 - a) Filtration
 - b) Distillation
 - c) Fractional distillation
 - d) None of these

4. The concentration of the solution is the mass of the solute in grams, which is present in –
 - a) 10gm of solvent
 - b) 10gm of solution
 - c) 100gm of solvent
 - d) 100gm of solution

5. Which of the following will show Tyndall effect?
 - a) Starch solution
 - b) Sodium chloride solution
 - c) Copper sulphate solution
 - d) Sugar solution

6. Which plastids are colourless?

- a) Chromoplasts
- b) Chloroplast
- c) Leucoplasts
- d) All of the above
- e) None of the above

7. An unripe green fruit changes colour when it ripens. The reason being:

- a) Chromoplasts changes to chlorophyll
- b) Chromoplasts changes to chromosomes
- c) Chromosomes changes to chromoplasts
- d) Chloroplast changes to chromoplasts
- e) None of the above

8. The phenomenon where cytoplasm shrink in a hypertonic medium is called:

- a) Frontolysis
- b) Plasmolysis
- c) Acidolysis
- d) Allolysis
- e) None of the above

9. _____ is called the energy currency of the cell

- a) Endoplasmic reticulum
- b) Oxygen
- c) ATP
- d) Mitochondria
- e) None of the above

10. Which of the following is not a function of the vacuole in plants?

- a) They store toxic metabolic wastes
- b) They help with the process of cell division
- c) They help to maintain turgidity
- d) They provide structural support
- e) None of the above

11. Where are the essential proteins and lipids required for cell membrane, manufactured?

- a) Lysosome
- b) Chromosomes
- c) Endoplasmic reticulum
- d) Mitochondria
- e) None of the above

12. _____ is not found in xylem tissues.

- a) Sieve tubes
- b) Xylem parenchyma
- c) Tracheids
- d) Vessels
- e) None of the above

13. One of the following is not a function of the stomata

- a) Directly participates in the process of photosynthesis
- b) Helps with the exchange of gases
- c) Helps to create water pressure, forcing water upward
- d) All of the above
- e) None of the above

14. Which of the following statements are correct about meristematic tissues?

- a) Composed of cells that are incapable of cell division
- b) Composed of a single type of cell
- c) It is composed of cells that are able to perform cell division
- d) All the above
- e) None of the above

15. Which of the following is connective tissue?

- a) Ligament
- b) Tendon
- c) Blood
- d) All of the above
- e) None of the above

16. _____ are cemented to one another, forming an irregular layer. These form the outer protective layer of the skin in an animal's body.

- a) Connective tissue
- b) Muscular tissues
- c) Nervous tissues
- d) Compound epithelium cells
- e) None of the above

17. Suppose a boy is moving with a uniform velocity of 10 m/s on a merry-go-round ride. Which of the following is true of the given scenario?

- a) The boy is at rest
- b) The boy is moving with no acceleration
- c) The boy is moving with accelerated motion
- d) The boy is moving with uniform velocity

18. What does the slope of the distance-time graph give?

- a) speed

- b) velocity
- c) acceleration
- d) displacement

19. What does the slope of the velocity-time graph give?

- a) speed
- b) velocity
- c) acceleration
- d) displacement

20. Which of the following is true of a free-falling body?

- a) It moves with non-uniform motion
- b) It has zero velocity
- c) It has constant non-zero acceleration
- d) It has non-uniform acceleration

21. The physical quantity that has both magnitude and direction is known as

- a) vectors
- b) scalars
- c) Both(a) and (b)
- d) Neither (a) or (b)

22. The inertia of an object causes the object to

- a) decrease its speed
- b) Increase its speed
- c) resist any change in the state of its motion
- d) decelerate due to friction

23. Which of the following is true for the third law of motion?

- a) Action-Reaction pair always acts on the same body.
- b) They act on different bodies in opposite directions
- c) Action-Reaction pairs have the same magnitudes and directions
- d) Act on either body at normal to each other

24. Which of the following is the SI units of force?

- a) kg m/s^2
- b) kg m/s
- c) Newton-metre
- d) Newton

25. If the mass of the body is doubled and its velocity becomes half, then the linear momentum of the body will

- a) become double
- b) remain the same
- c) become half
- d) become four times

Answer the following questions:

1. How much water should be added to 15 grams of salt to obtain 15 percent salt solution?
2. Explain why, water is a compound and not a mixture?
3. Write the difference between colloid, suspension and true solution?
4. How will you separate iron filings, ammonium chloride and sand from their mixture?
5. Write applications of centrifugation.
6. What are the two types of cells based on the nuclear structure?
7. Why is the plasma membrane called a selectively permeable membrane?
8. What will happen to a plant cell or an animal cell if it is placed in a hypotonic, isotonic, or hypertonic solution?
9. Differentiate between the Rough Endoplasmic Reticulum (RER) and Smooth Endoplasmic Reticulum (SER).
10. Draw a neat, labelled diagram of an animal cell and a plant cell.
11. List the major differences between plant cells and animal cells.
12. Draw a labelled diagram of a prokaryotic cell.
13. Why do the fingers of your hands shrink when you wash clothes for a long time?
14. What happens when a fresh tomato is placed in a highly concentrated salt solution for a few hours?
15. What will happen if there is an error in Mitosis or Meiosis processes?
16. Who gave Cell Theory? What are its postulates?
17. How is cell division controlled?
18. How do plants and animals grow and heal?
19. Name the type of simple tissue that may be found in a. Soft green stems b. Strong flexible stems c. Hard and woody stems d. Coconut fibres Write a short note on each of the above
20. What is epithelial tissue? Draw diagrams to depict the 4 types of epithelial tissues.
21. Differentiate between the 3 types of muscular tissues on the basis of structure, location, function and diagrams, in a tabular form.
22. Name the tissue that
 - a. forms the skin
 - b. makes up the lining of blood vessels
 - c. makes up the lining of kidney tubules
 - d. is found in the lining of the respiratory tract Draw their diagrams too.
23. Differentiate between –
 - a. Ligament and tendon
 - b. Bone and cartilage
 - c. parenchyma and sclerenchyma
 - d. collenchyma and sclerenchyma
24. A body thrown vertically upwards reaches a maximum height 'h'. It then returns to ground. Calculate the distance travelled and the displacement.

25. An object is moving in a circle of radius 'r'. Calculate the distance and displacement (i) when it completes half the circle (ii) when it completes one full circle.
 26. The odometer of a car reads 2000 km at the start of a trip and 2400km at the end of the trip. If the trip took 8 hr, calculate the average speed of the car in km/hr and m/s.
 27. A scooter acquires a velocity of 36km/hr in 10seconds just after the start. It takes 20 seconds to stop. Calculate the acceleration in the two cases.
 28. A train starting from the rest moves with a uniform acceleration of 0.2 m/s² for 5 minutes. Calculate the speed acquired and the distance travelled in this time.
 29. A bus was moving with a speed of 54 km/h. On applying brakes, it stopped in 8 seconds. Calculate the acceleration and the distance travelled before stopping.
 30. Why is it difficult for fire men to hold hose pipe while putting out fire?
 31. Why is a gun far heavier than a bullet?
 32. Why do we get backward jerk in a bus as it starts suddenly?
 33. How does first law of motion lie in second law of motion?
 34. Define 1 Newton of force. If force of 10 Newton acts on a body, what is its value in cgs system of units?
 35. Why does gun recoil when a bullet is fired?
 36. How much force is required to change velocity of a body of mass 10kg from 2m/s to 6m/s. Is this force balanced or unbalanced.
 37. A cat of body mass 2.5 kg running with a speed of 2m/s jumps on a stationary skateboard of mass 0.5 kg. Will the skateboard move with cat on it if yes find the velocity of board and cat system?
 38. State the three Laws of motion.
 39. Differentiate between;
 - a) Mass and weight
 - b) Balanced and unbalanced force
 - c) Inertia of rest and inertia of motion
 40. a) Graphically derive the three equations of motion.
b) Mathematically derive Newton's Second law of motion.
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SOCIAL STUDIES:

- Q1. Describe the mechanism of the Indian South-West monsoon.
- Q2. Explain the difference between weather and climate.
- Q3. Although rivers provided many benefits, they also created challenges for earlier societies. Discuss both the advantages and disadvantages of settling near rivers,
- Q4. What is meant by cultural evolution?
- Q5. What are the challenges faced by Indian democracy?
- Q6. How does the media function as the 'fourth pillar of democracy'?
- Q7. Explain differences between National and State party.
- Q8. How does Election Commission of India ensure that elections are made more inclusive?

Q9. What are the key questions in Economics?

Q10. What is the difference between a market economy and a centrally planned economy?

Q11. What are the factors that influence the demand and supply of goods and services in the market?

Q12. Explain how market equilibrium is achieved through the interaction of demand and supply.

MORAL SCIENCE:-

1. How did grandmother break the spell of complaining with Ekta?
2. How did the Principal and teachers at the school react to the giggling girls?
3. What was the little boy greedy for?
4. Why did he decide he would not eat any more Turkish delight?
5. Write an essay on racism and how is it prevalent in India?
6. What role did Nelson Mandela give up and what position did he achieve?
7. Why did children avoid Satish?
8. Why could Umesh be called a brave boy?
9. Why do you think Satish stopped being a bully?
10. Can you give personal examples of when you have not been a good citizen?

ARTIFICIAL INTELLIGENCE:-

Q1. Explain token in Python.

Q2. What is Self-Management and What are the factors that affect self-confidence?

Q3. Give examples of three entrepreneurs you know who live around you. Write how they are helping your city?

Q4. List any four characteristics of entrepreneurship.

Q5. List any two characteristics of wage employment.

Q6. Draw out the difference between the three domains of AI with respect to the types of data they use.

Q7. What are the various stages of AI Project Cycle? Can you explain each with an example?

Q8. What are the steps of Problem Scoping?

Q9. What is operator in python?

Q10. What is Data Acquisition?

Q11. List any five graphs used for data visualization.

Q12. What are Comments in Python.

Q13. What is Smart Goal ?