



परमाणु ऊर्जा शिक्षण संस्था

Atomic Energy Education Society

वार्षिक परीक्षा / Annual Examination 2025 - 26

कक्षा / Class : VI

अवधि / Duration : 3 hours

विषय / Subject : Mathematics

अधिकतम अंक / Maximum Marks : 80

सामान्य निर्देश / General Instructions:

1. This question paper contains 38 questions and is divided into 5 sections: A, B, C, D and E.
2. Section A contains 20 Multiple Choice Questions (MCQs), each carrying 1 mark.
3. Section B contains 5 questions, each carrying 2 marks.
4. Section C contains 6 questions, each carrying 3 marks.
5. Section D contains 3 case-study questions, each carrying 4 marks. There is an internal choice between sub part (c) and (d). Sub parts (a) and (b) are compulsory.
6. Section E contains 4 questions, carrying 5 marks each.
7. All questions are compulsory.

Section A (20×1= 20)

1. Which of the following statements is true? [1]
(a) -5 is greater than -2 (b) -2 is greater than -5 (c) $-5 = -2$ (d) $(-5) + (-2) = 7$
2. Every figure has one angle of symmetry equal to _____. [1]
(a) 0° (b) 90° (c) 180° (d) 360°
3. $\frac{8}{15} - ? = \frac{7}{15}$ [1]
(a) 1 (b) $\frac{1}{15}$ (c) $\frac{15}{15}$ (d) $\frac{1}{8}$
4. If the sides of a square are doubled, then its area _____. [1]
(a) remains same (b) becomes half (c) becomes double (d) becomes 4 times
5. The distance between -8 and 6 on the number line is _____ units. [1]
(a) 14 (b) 8 (c) 6 (d) 2

6. A fraction equivalent to $\frac{4}{7}$ is [1]
 (a) $\frac{4+2}{7+2}$ (b) $\frac{4-2}{7-2}$ (c) $\frac{4 \times 2}{7 \times 2}$ (d) $\frac{4}{7} + \frac{2}{7}$
7. The number of lines of symmetry of an n-sided regular polygon is ____ [1]
 (a) n (b) 2n (c) $\frac{n}{2}$ (d) n^2
8. Which of the following real-life situations represents a negative integer? [1]
 (a) Deposit of ₹500 in a bank (b) Climbing 20 m above sea level
 (c) Withdrawal of ₹200 from an account (d) Gaining 5 marks in a test
9. The order of rotational symmetry of a circle is _____. [1]
 (a) 1 (b) 2 (c) 4 (d) Infinite
10. A figure bounded by four sides is called a rectangle if:
 (a) opposite sides are equal
 (b) opposite angles are equal
 (c) opposite sides are equal and each angle is equal to 90°
 (d) opposite sides are unequal
11. Which of the following pairs is considered a "zero pair"? [1]
 (a) 5 and 2 (b) -3 and 3 (c) 10 and -5 (d) 2 and 2
12. In a rectangle PQRS, the line segments PR and QS are called _____. [1]
 (a) medians (b) bisectors (c) diagonals (d) opposite sides
13. A triangle has two sides 8 cm and 7 cm. If its perimeter is 26 cm, what is the length of the third side? [1]
 (a) 11 cm (b) 15 cm (c) 26 cm (d) 41 cm
14. Choose the correct option among the following: [1]
 (a) $\frac{2}{69} < \frac{2}{87}$ (b) $\frac{2}{69} > \frac{2}{87}$ (c) $\frac{2}{69} = \frac{2}{87}$ (d) $\frac{2}{3} < \frac{3}{5}$
15. The perimeter of a rectangle is 48 cm and its length is 15 cm. What is its breadth? [1]
 (a) 9 cm (b) 24 cm (c) 30 cm (d) 33 cm
16. A figure looks identical after rotation by 180° . Its order of rotational symmetry is _____. [1]
 (a) 1 (b) 2 (c) 3 (d) 4
17. Which name is not valid for a square with vertices in order P–Q–R–S? [1]
 (a) PQRS (b) QRSP (c) PRQS (d) RSPQ
18. A square has an area of 100 m^2 . What is its perimeter? [1]
 (a) 10 m (b) 20 m (c) 40 m (d) 50 m

For questions 19 and 20, read the statements A and R and choose the correct option from those given:

19. Statement A (Assertion): If $\frac{25}{60} = \frac{x}{12}$, then the value of x is 5.

Statement R (Reason): To find the equivalent fraction of a number multiply or divide the numerator and denominator by the same number. [1]

- (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.

20. Statement A (Assertion): A regular hexagon with each side 4 cm has a perimeter of 16 cm.

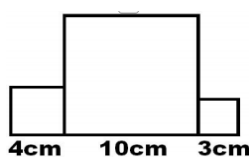
Statement B (Reason): Perimeter of a regular hexagon = $6 \times$ side length. [1]

- (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.

Section B ($5 \times 2 = 10$)

21. A diver is 5 m below sea level. He moves 9 m down and then 2 m up. Find his final depth. [2]

22. Three squares are joined together as shown in figure. Their sides are 4 cm, 10 cm and 3 cm. Find the area of the figure. [2]



23. Construct a four-sided figure other than a square in which all sides are equal to 5 cm. [2]

24. (a) Express $\frac{54}{8}$ as a mixed fraction. [2]

(b) Find the simplest form of $\frac{24}{144}$

25. Can we have a figure with rotational symmetry whose smallest angle of symmetry is
a) 60° b) 22° . Explain. [2]

Section C ($6 \times 3 = 18$)

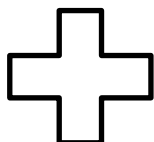
26. Evaluate the following using tokens: a) $6+(-3)$ b) $-2-(-4)$ c) $-5+4$ [3]

27. Write the following fractions in the descending order. [3]

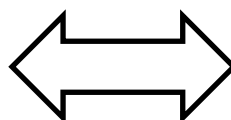
$$\frac{3}{4}, \frac{7}{12}, \frac{12}{5}, \frac{5}{4}$$

28. Draw and find the number of lines of symmetry in each of the following shapes. [3]

a)



b)



29. Construct a square of side 6 cm and draw a circle of diameter 3 cm at the centre of the square. [3]

30. Mark fractions 1 , 0 , $\frac{2}{3}$, $\frac{5}{3}$ and $2\frac{1}{3}$ on number line. [3]

31. What is the cost of tiling a rectangular plot of land 400 m long and 300 m wide at the rate of ₹ 8 per hundred sq. m? [3]

Section D ($3 \times 4 = 12$)

32. The architects of the new Sansad Bhavan (Parliament Building) incorporated specific geometric principles and traditional Indian motifs into its design to symbolize unity, heritage, and order.



The architects designed the building so that if you draw a vertical line down the center of the main entrance, the left side is a perfect mirror image of the right side.

a) Name this type of symmetry? [1]

b) How many lines of symmetry do these shapes have? [1]

c) Does it have rotational symmetry around its centre? If so, find the angles of rotational symmetry. [2]

OR

d) Draw a rough sketch of a quadrilateral with reflection symmetry but not having rotational symmetry.

33. A scientific research station in Antarctica records temperatures using integers, where 0°C is the freezing point of water. The average temperature during the day is -13°C . At night, the temperature drops further by 6°C . The station keeps its main laboratory heated to a constant 21°C .

- a) What integer represents the temperature inside the laboratory? [1]
- b) What is the temperature at the station during the night? [1]
- c) What is the difference between the inside laboratory temperature and the average daytime temperature? [2]

OR

d) The heating system briefly fails, causing the lab temperature to drop by 25°C from its usual 21°C . What is the new lab temperature?

34. Mr. Rohit is planning to renovate his backyard and wants to turn a section of it into a new rectangular garden. He needs to figure out how much fencing material he needs to buy and how much soil/turf he will need for the inside of the garden. The dimensions he has decided for the garden are 12 m x 8 m.

- a) Mr. Rohit wants to instal fencing around the entire perimeter of the garden to keep animals out. How many metres of fencing material does he need to purchase? [1]
- b) He wants to cover the entire ground inside the garden with new grass turf. What is the total area of the garden he needs to cover? [1]
- c) Mr. Rohit decides to put a small square sandpit in each of the four corners of the garden which is 2 metres long on each side. What is the total area of the sandpits? [2]

OR

d) After placing the 2 m x 2 m sandpit in the 4 corners of the garden, how much area is left over for the grass turf?

Section E ($4 \times 5 = 20$)

35. A) Simplify the following using Brahmagupta's method: [5]

$$\frac{3}{4} + \frac{1}{2} + \frac{6}{5}$$

B) Maya takes $\frac{11}{6}$ minutes to take a complete round of the park and her friend Asma takes $\frac{13}{4}$ minutes to do the same. Who takes less time and by how much?

36. Do as directed:

[5]

i) Evaluate : $(-85) - (-12)$

ii) Complete the following sequence

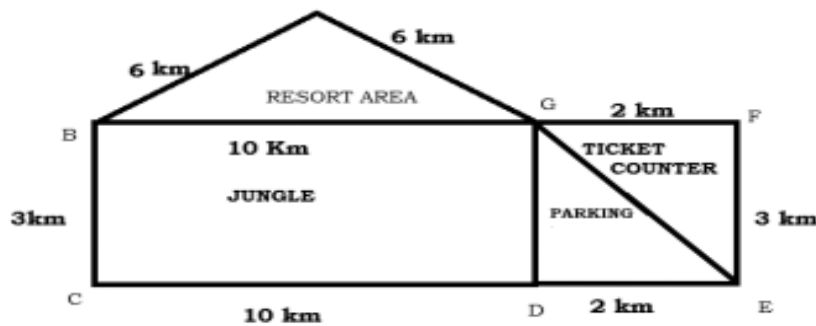
a) -44, -36, -28, ---, ---

b) ---, -50, -25, 0, 25, 50, ---

37. Construct a rectangle where one of its sides is 5 cm and the length of the diagonal is 7 cm

[5]

38. Students of class 6 visited the Jungle Safari. For their safety, the guide provided the map of the park to each student. The map is as given below:



Based on the above information, answer the following questions.

(i) What is the perimeter of the Jungle area? [1]

(ii) There is fencing around the resort area for safety. Find the length of the fencing. [1]

(iii) Calculate the area of the parking in km^2 , if the area of parking and the area of the ticket counter are equal? [2]

(iv) What is the area of Jungle region? [1]
