TERM I

M.M:80 BVP/IX/MATHS/2025-26

Time: 3 hours

General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 questions carrying 05 marks each.
6. Section E has 3 case study based questions (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3marks and 2 Questions of 2 marks has been provided.
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

Section A (1 mark each)

1. If the volume and the surface area of a sphere are numerically the same then its radius is

   (a) 1 unit (b) 2 units (c) 3 units (d) 4 units

2. The section formed by horizontal and vertical lines determining the position of point in a Cartesian plane is called:

   (a) Origin (b) X-axis (c) Y-axis (d) Quadrants

3. One of the dimensions of the cuboid whose volume is $16x^2 - 26x + 10$ is:
   (a) (x+1) (b) 3 (c) (8x-5) (d) (x-2)

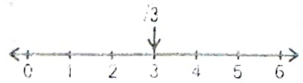
4. The condition that the equation $ax + by + c = 0$ represents a linear equation in two variables is:

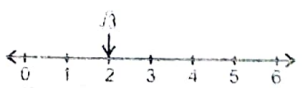
   (a) $a \neq 0, b = 0$ (b) $b \neq 0, a = 0$ (c) $a = 0, b = 0$ (d) $a \neq 0, b \neq 0$

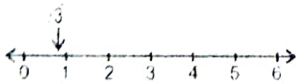
5. If the area of an equilateral triangle is $16\sqrt{3}$ cm^2, then the perimeter of the triangle is

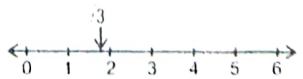
   (a) 48 cm (b) 24 cm (c) 12 cm (d) 36 cm

6. On which number line is the position of $\sqrt{3}$ shown **CORRECTLY**?

   (a) 

   (b) 

   (c) 

   (d) 

7. The smallest rational number by which $\frac{1}{5}$ should be multiplied so that its decimal expansion terminates after one place of decimal, is

(a) $\frac{1}{10}$ (b) $\frac{5}{10}$ (c) 5 (d) 50

8. One of the solutions of the linear equation $3x - 4y + 6 = 0$ is

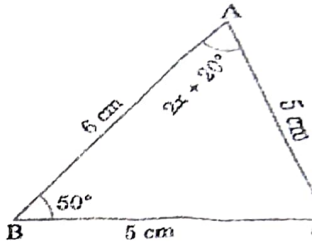
(a) (-2, -3) (b) (3, -2) (c) (3, 2) (d) (2, 3)

9. Rahul is of the same age as Mohan. Ram is also of the same age as Mohan. State the Euclid's axiom that illustrates the relative ages of Rahul and Ram.

(a) Ist Axiom (b) IInd Axiom (c) IIIrd Axiom (d) IVth Axiom

10. In given figure, the measure of $\angle BAC$ is:

(a) 60° (b) 50° (c) 70° (d) 80



11. $\sqrt{300} - \sqrt{48} + \sqrt{75} - \sqrt{147}$

Which of the following evaluates the above expression?

(a) $2\sqrt{3}$ (b) $4\sqrt{3}$ (c) $6\sqrt{3}$ (d) $8\sqrt{3}$

12. In Δ PQR, $\angle R = \angle P$ and QR = 4 cm and PR = 5 cm. Then the length of PQ is:

(a) 2 cm (b) 2.5 cm (c) 4 cm (d) 5 cm

13. Which of these is a rational number between $\sqrt{2}$ and $\sqrt{3}$?

(a) $\frac{\sqrt{2}\times\sqrt{3}}{2}$ (b) $\frac{\sqrt{2}+\sqrt{3}}{2}$ (c) 1.5 (d) 1.8

14. A conical cap with radius 10 cm and slant height 15 cm has to be made. How much paper would be needed to make it?

(a) 150cm^2 (b) $25\pi\text{cm}^2$ (c) $150\pi\text{cm}^2$ (d) $250\pi\text{cm}^2$

15. In Indus valley civilization (about 300 B. C.) the bricks used for construction work were having dimensions in the ratio :

(a) 1 : 3 : 4 (b) 4 : 2 : 1 (c) 4 : 4 : 1 (d) 4 : 3 : 2

16. $\angle X$ and $\angle Y$ are complementary angles. If measure of $\angle X$ is four times the measure of $\angle Y$, then which of these gives the measures of $\angle X$ and $\angle Y$?

(a) 65°, 25° (b) 72°, 18° (c) 144°, 36° (d) 160°, 40°

17. Which of these is a cubic polynomial?

(a) $p^3 + q^3 + 9p^2q^2$

(b) $9p^2 - 5p + 1$

(c) $(1.5)^3 p - 3$

(d) $9p^3 + \sqrt{5}q$

18. Two triangles have the same semi-perimeter. Do the two triangles **NECESSARILY** have the same area?

(a) Yes, as their perimeters are equal.

(b) No, as their perimeters can be different.

(c) No, as their side lengths can be different.

(d) Yes, as their semi-perimeters are the same.

Assertion and Reason Questions

Directions: **In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:**

(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 but reason (R) is not the correct explanation of assertion (A).

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

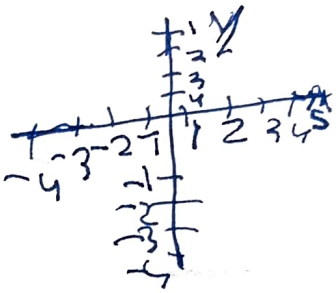
(d) Assertion (A) is false but reason (R) is true.

19. **Assertion (A):** The polynomial $p(x) = (x-1)(x+2)$ has zeros at $x=1$ and $x=-2$.
Reason (R): If $(x-a)$ is a factor of a polynomial, then $x=a$ is a zero of the polynomial.

20. **Assertion (A):** The decimal expansion of 34.99 is 0.343434...
Reason (R): The decimal expansion of a rational number is unique and it is always non-terminating and recurring.

Section B (2marks each)

21. In the given fig., if AC = BD, then prove that AB = CD.



22. Find the coordinates of the point
    a. whose ordinate is – 4 and which lies on *y*-axis.
    b. whose abscissa is 5 and which lies on *x*-axis.

23. Without actually calculating the cubes, find the value of $(-33)^3 + (17)^3 + (16)^3$.

OR

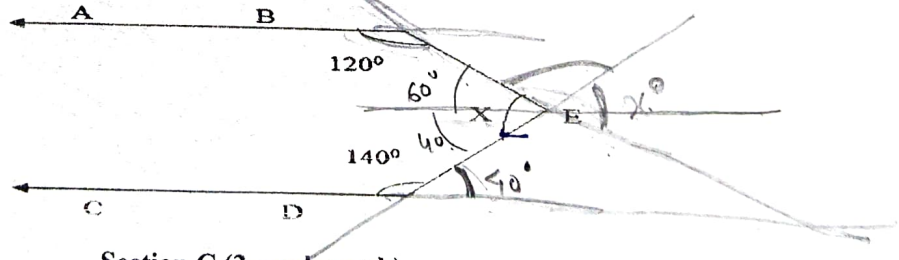
Evaluate $(997)^3$ using suitable identities.

24. Represent $\sqrt{10}$ on the number line.

OR

Represent $\sqrt{7.3}$ on the number line.

25. In the given figure, if AB ‖CD, determine whether the value of x is 100° or not? Justify your answer with proper reasoning.



Section C (3 marks each)

26. Factorize: $a^3 - 2\sqrt{2}\,b^3$

OR

Given that $p - \frac{1}{2p} = x$ and $p + \frac{1}{2p} = y$. Find the value of $y^2 - x^2$.

27. (i) Write the equations of any 4 lines passing through (3, 12). (2)

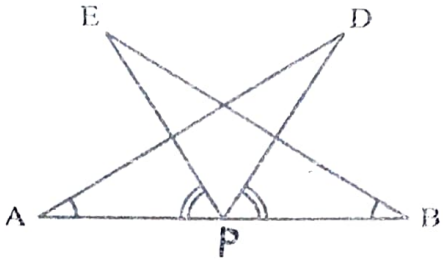
(ii) A rabbit covers y metres distance by walking 10 metres in slow motion and the remaining by x jumps, each jump contains 2 metres. Write the linear equation in two variables to represent this statement and find the value of a, b and c. (1)

28. Find a and b, if

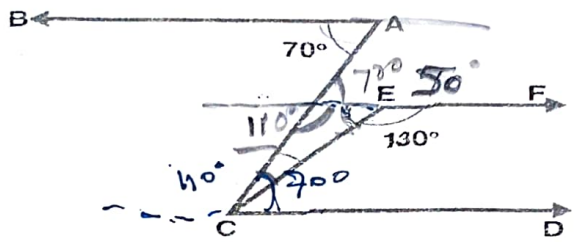
$$\frac{2\sqrt{5}+\sqrt{3}}{2\sqrt{5}-\sqrt{3}}+\frac{2\sqrt{5}-\sqrt{3}}{2\sqrt{5}+\sqrt{3}}=a+\sqrt{15}b$$

29. AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$. Show that

(i) $\Delta DAP \cong \Delta EBP$ (ii) AD = BE

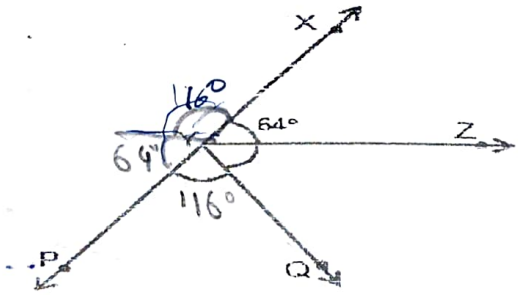


30. In figure, if AB || CD and CD || EF, find $\angle ACE$.



OR

In the given figure, if $\angle XYZ = 64°$ and ray YQ bisects $\angle ZYP$, find $\angle XYQ$ and reflex $\angle QYP$.



31. A spherical balloon is inflated and its radius increases from 8 cm to 16 cm. Calculate and compare the surface areas and volumes of the balloon in both cases. Which one shows a greater increase — the surface area or the volume?