

Class : 9Register
Number**FIRST MID TERM TEST - 2023****MATHEMATICS**

Time Allowed : 1.30 Hours]

[Max. Marks : 50

PART - A

Choose the correct Answer.

7x1=7

1. The set $P = \{x / x \in \mathbb{Z}, -1 < x < 1\}$ is a
 - (a) Singleton set
 - (b) Power set
 - (c) Null set
 - (d) Subset
2. For any three sets A, B and C, $(A - B) \cap (B - C)$ is equal to
 - (a) A only
 - (b) B only
 - (c) C only
 - (d) ϕ
3. If $x - 3$ is a factor of $P(x)$, then the remainder is
 - (a) 3
 - (b) -3
 - (c) $p(x)$
 - (d) $p(-3)$
4. If $\sqrt{80} = K\sqrt{5}$ then $K = ?$
 - (a) 2
 - (b) 4
 - (c) 8
 - (d) 16
5. The exterior angle of a triangle is equal to ?
 - (a) Exterior angles
 - (b) Interior opposite angles
 - (c) Alternate angles
 - (d) Interior angles.
6. If $A \cup B = A \cap B$
 - (a) $A \neq B$
 - (b) $A = B$
 - (c) $A \subset B$
 - (d) $B \subset A$
7. $\frac{1}{3} = \dots\dots\dots$
 - (a) 0.33
 - (b) $0.\bar{3}$
 - (c) $0.\overline{33}$
 - (d) 0.3

PART - B

- II. Answer any 5 Questions. Q.No. 14 is compulsory. 5x2=10
8. If $A = 20$ let of all even natural number less than 20. Represent the sets in roster form.
 9. If $U = \{c, d, e, f, g, h, i, j\}$ and $A = \{c, d, g, j\}$, find 'A'.
 10. If $P = \{1, 2, 5, 7, 9\}$; $Q = \{2, 3, 5, 9, 11\}$; $R = \{3, 4, 5, 7, 9\}$ and $S = \{2, 3, 4, 5, 6\}$, then find $(P \cup Q) \cap R$.

CP/9/Mat/1

11. Find any three rational numbers between $\frac{-7}{11}$ and $\frac{2}{11}$.
12. Simplify : $5\sqrt{3} + 18\sqrt{3} - 2\sqrt{3}$.
13. Find the symmetric difference between the following sets.
 $X = \{5, 6, 7\}$, and $Y = \{5, 7, 9, 10\}$
14. Represent the following numbers in the scientific notation.
 i) 59640000000 ii) 0.0000006000.

PART - C

- III. Answer any 5. questions. (Q.No.21 is compulsory) 5x5=25
15. Verify $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ using diagrams.
16. Determine the value of m, if $(x+3)$ is a factor of $x^3 - 3x^2 - mx + 24$.
17. In a group of 100 students 85 students speak Tamil, 40 students speak English, 20 students speak French, 32 speak Tamil and English, 12 speak English and French and 10 speak Tamil and French. If each student know atleast any one of theses languages then find the number of students who speak all these three languages.
18. Convert the following decimal numbers in the form of $\frac{p}{q}$ ($p, q \in \mathbb{Z}, q \neq 0$).
 i) $0.\overline{3}$ ii) $2.\overline{124}$
19. The angles of a triangle are $1 : 2 : 3$, find the measure of each angle of the triangle.
20. If $A = \{-2, 0, 1, 3, 5\}$; $B = \{-1, 0, 2, 5, 6\}$ and $C = \{-1, 2, 5, 6, 7\}$ then show that $A - (B \cup C) = (A - B) \cap (A - C)$
21. Rationalise the denominator and simplify : $\frac{\sqrt{5}}{\sqrt{6} + 2} - \frac{\sqrt{5}}{(\sqrt{6} - 2)}$

PART - D

Answer Any One.

1x8=8

22. (a) Construct the centroid of ΔPQR with sides are $PQ = 8$ cm, $QR = 6$ cm, $RP = 7$ cm.

(OR)

- (b) Draw the graph for $Y = 4x - 1$.