

FIRST MID TERM TEST 2024

Standard IX

 Reg.No.

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MATHEMATICS

Time : 1.30 hrs

Part - I

Marks : 50

I. Choose the correct answer:

7 x 1 = 7

1. The set $P = \{x/x \in Z, -1 < x < 1\}$ is a
 - a) Singleton set
 - b) Power set
 - c) Null set
 - d) Subset
2. If $A \cup B = A \cap B$, then
 - a) $A \neq B$
 - b) $A = B$
 - c) $A \subset B$
 - d) $B \subset A$
3. For any three sets P, Q and R, $P - (Q \cap R)$ is
 - a) $P - (Q \cup R)$
 - b) $(P \cap Q) - R$
 - c) $(P - Q) \cup (P - R)$
 - d) $(P - Q) \cap (P - R)$
4. 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
5. Which one of the following regarding sum of two irrational numbers, is true?
 - a) always an irrational number
 - b) may be a rational or irrational number
 - c) always a rational number
 - d) always an integer
6. An irrational number between 2 and 2.5 is
 - a) $\sqrt{11}$
 - b) $\sqrt{5}$
 - c) $\sqrt{2.5}$
 - d) $\sqrt{8}$
7. $\sqrt{27} + \sqrt{12} =$
 - a) $\sqrt{39}$
 - b) $5\sqrt{6}$
 - c) $5\sqrt{3}$
 - d) $3\sqrt{5}$

Part - II

II. Answer any 5 questions. (Q.No.14 is compulsory)

5 x 2 = 10

8. List the set of letters of the following in Roster form :
 - i) PARALLELOGRAM
 - ii) CZECHOSLOVAKIA
9. Are $P = \{x : -3 \leq x \leq 0, x \in Z\}$ and $Q =$ The set of all prime factors of 210, equivalent sets?
10. If $A = \{a, \{a, b\}\}$, write all the subsets of A.
11. If $A = \{6, 7, 8, 9\}$ and $B = \{8, 10, 12\}$, find $A \Delta B$
12. Find any three rational numbers between $\frac{-7}{11}$ and $\frac{2}{11}$.

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IX Maths

13. Rationalize the denominator : $\frac{1}{\sqrt{50}}$

14. Represent 569430000000 in scientific notation.

Part - III

III. Answer any 5 questions. (Q.No.21 is compulsory)

5 x 5 = 25

15. If $A = \{b, e, f, g\}$ and $B = \{c, e, g, h\}$, then verify the commutative property of

i) Union of sets ii) Intersection of sets

16. If $A = \{p, q, r, s\}$, $B = \{m, n, q, s, t\}$ and $C = \{m, n, p, q, s\}$ then verify the associative property of Union of sets.

17. Verify $A - (B \cup C) = (A - B) \cap (A - C)$ using Venn diagram.

18. In a party of 45 people, each one likes tea or coffee or both. 35 people like tea and 20 people like coffee. Find the number of people who

i) like both tea and coffee

ii) do not like tea

iii) do not like coffee

19. Arrange surds in descending order :

$\sqrt[3]{5}, \sqrt[3]{4}, \sqrt[3]{3}$

20. If $x = \sqrt{5} + 2$, then find the value of $x^2 + \frac{1}{x^2}$

21. Represent the following on the number line: 5.348

Part - IV

IV. Answer any one.

1 x 8 = 8

22. If $U = \{a, b, c, d, e, f, g, h\}$, $A = \{b, d, f, h\}$, $B = \{a, d, e, h\}$, find the following sets.

i) A'

ii) B'

iii) $A' \cup B'$

iv) $A' \cap B'$

v) $(A \cup B)'$

vi) $(A \cap B)'$

vii) (A')

viii) $(B)'$

23. Represent $\sqrt{9.3}$ on a number line.
