



Time: 1.30 Hours

Standard 9 MATHEMATICS

Marks: 50

PART - I

- Note:** i) Answer all the questions: **8×1=8**
ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- 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) If $B - A$ is B then $A \cap B$ is
 - a) A
 - b) B
 - c) U
 - d) ϕ
- 3) If $n(A) = 10$ and $n(B) = 15$, then the minimum and maximum number of elements in $A \cap B$ is
 - a) 15, 10
 - b) 10, 15
 - c) 10, 0
 - d) 0, 10
- 4) For any three sets P, Q and R , $P - (Q \cap R)$
 - a) $P - (Q \cup R)$
 - b) $(P \cap Q) - R$
 - c) $(P - Q) \cup (P - R)$
 - d) $(P - Q) \cap (P - R)$
- 5) Which one of the following has a terminating decimal expansion
 - a) $\frac{5}{64}$
 - b) $\frac{8}{9}$
 - c) $\frac{14}{15}$
 - d) $\frac{1}{12}$
- 6) An irrational number between 2 and 2.5 is
 - a) $\sqrt{11}$
 - b) $\sqrt{5}$
 - c) $\sqrt{2.5}$
 - d) $\sqrt{8}$
- 7) Which among the following is not a rational number?
 - a) $\sqrt{\frac{8}{18}}$
 - b) $\frac{7}{3}$
 - c) $\sqrt{0.01}$
 - d) $\sqrt{13}$
- 8) The smallest rational number by which $\frac{1}{3}$ should be multiplied so that its decimal expansion terminates with one place of decimal is
 - a) $\frac{1}{10}$
 - b) $\frac{3}{10}$
 - c) 3
 - d) 30

PART - II

- Note:** i) Answer six the questions only: **6×2=12**
ii) Question number 16 is compulsory

- 9) Write all the subsets of $A = \{a, b\}$
- 10) Represent the following set in Roster form: $B = \{x : x \text{ is perfect cube, } 27 < x < 216\}$
- 11) If $A = \{-3, -2, 1, 4\}$ and $B = \{0, 1, 2, 4\}$ find (i) $A - B$ (ii) $B - A$
- 12) If $K = \{a, b, d, e, f\}$, $L = \{b, c, d, g\}$ and $M = \{a, b, c, d, h\}$ then find the following (i) $K \cap (L \cup M)$ (ii) $K \cup (L \cap M)$

Kindly send me your study materials to padasalai.net@gmail.com

- 13) Find any three rational numbers between $\frac{-7}{11}$ and $\frac{2}{11}$.
- 14) Find the value of $81^{\frac{1}{4}}$.
- 15) Represent the following as decimal form $\frac{-4}{11}$.
- 16) Verify that $1 = \overline{0.9}$.

PART - III

Note: i) Answer six the questions only:

6×5=30

ii) Question number 24 is compulsory

- 17) (i) Write down the power set of $B = \{1, 2, 3\}$
 (ii) If $n[p(A)] = 256$ find $n(A)$.
- 18) If $U = \{a, b, c, d, e, f, g, h\}$, $A = \{b, d, f, h\}$ and $B = \{a, d, e, h\}$, find the following sets
 (i) A' (ii) B' (iii) $A' \cup B'$ (iv) $A' \cap B'$ (v) $(A \cup B)'$
- 19) If $P = \{x: x \in W \text{ and } 0 < x < 10\}$, $Q = \{x: x = 2n + 1, n \in W \text{ and } n < 5\}$ and $R = \{2, 3, 5, 7, 11, 13\}$, then verify $P - (Q \cap R) = (P - Q) \cup (P - R)$
- 20) In a college, 240 students play cricket, 180 students play football, 164 students play hockey, 42 play both cricket and football, 38 play both football and hockey, 40 play both cricket and hockey and 16 play all the three games. If each student participate in at least one game the find (i) the number of students in the college (ii) the number of students who play only one game.
- 21) Express the following decimal expression into rational numbers
 (i) $0.\overline{24}$ (ii) $-5.13\overline{2}$
- 22) Represent $\sqrt{9.3}$ on a number line.
- 23) Find the decimal expansion of $\sqrt{3}$
- 24) Verify $(A \cap B) = A' \cup B'$ using Venn diagrams.
-