V9M

Virudhunagar District

Common First Mid Term Test - 2024

Standard 9

MATHS

Time: 1.30 Hrs. Marks: 50

PART - I

7×1=7

Note: i) Answer all the questions.

ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

1) If A = {x, y, z} then the number of non-empty subsets of 'A' is

a) 8 b) 5 c) 6 d) 7

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) Let $A = \{\phi\}$ and $B = P(A)$, then $A \cap B$ is

a) $\{\phi\ \{\phi\}\}$ b) $\{\phi\}$ c) ϕ d) $\{0\}$

4) For any three sets P, Q, R, $P-(Q \cap R)$ is

a) $P-(Q \cup R)$ b) $(P \cap Q)-R$ c) $(P-Q) \cup (P-R)$ d) $(P-Q) \cap (P-R)$

5) Which one of the following is an irrational number?

a) $\sqrt{25}$ b) $\sqrt{\frac{9}{4}}$ c) $\frac{7}{11}$ d) π

6) An irrational number between 2 and 2.5 is

a) $\sqrt{11}$ b) $\sqrt{5}$ $\sqrt{9.3}$ c) $\sqrt{2.5}$ d) $\sqrt{8}$

7) $0.\overline{34} + 0.3\overline{4} =$

a) $0.6\overline{87}$ b) $0.\overline{68}$ c) $0.6\overline{8}$ d) $0.68\overline{7}$

PART - II

5×2=10

Note: i) Answer five the questions only.

ii) Question number 14 is compulsory.

8) Represent the following set in descriptive form:

Q = {7, 11, 13, 17, 19, 23, 29}

9) Write all the subset of A = {a, b}.

10) If A = {b, e, f, g} and B = {c, e, g, h} then verify the commutative property of union of set.

11) Find the 5^{th} root of $\frac{1024}{3125}$.

12) Find whether x and y are rational or irrational in the following

$a = 2+\sqrt{3}$, $b = 2-\sqrt{3}$, x = a+b, y = a−b

13) Represent the following numbers in the scientific notation:

i) 2000.57 ii) 0.0009000002

14) If A = {6, 7, 8, 9} and B = {8, 10, 12} find $A \Delta B$.

PART - III

5×5=25

Note: i) Answer five questions only.

ii) Question number 21 is compulsory.

15) If $\cup = \{0, 1, 2, 3, 4, 5, 6, 7\}$, $A = \{1, 3, 5, 7\}$ and $B = \{0, 2, 3, 5, 7\}$ find the following sets (i) A' (ii) B' (iii) $A' \cup B'$ (iv) $A' \cap B'$ (v) $(A')'$.

16) Verify $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ using Venn diagrams.

17) If $A = \{b, c, e, g, h\}$, $B = \{a, c, d, g, i\}$ and $C = \{a, d, e, g, h\}$ then show that $A-(B \cap C) = (A-B) \cup (A-C)$.

18) 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 students participate in atleast one games then find (i) the number of students in the college (ii) the number of students who play only one game.

19) Express the rational number $\frac{1}{33}$ in recurring decimal form by using the recurring decimal expansion of $\frac{1}{11}$. Hence write $\frac{71}{33}$ is recurring decimal form.

20) Arrange surds in descending order: $\sqrt[2]{\sqrt[3]{5}}, \sqrt[3]{\sqrt[4]{7}}, \sqrt{\sqrt{3}}$

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

PART - IV

1×8=8

22) Draw the graph: $y = 2x$

(OR)

Draw the graph: $y = 3x-1$
