

FML

FIRST MID TERM TEST - 2024

9 - STD

MATHS

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Time : 1.30 Hrs

Marks : 50

I Answer all the following questions.

7 X 1 = 7

- If $B \subseteq A$ then $n(A \cap B)$ is
a) $n(A - B)$ b) $n(B)$ c) $n(B - A)$ d) $n(A)$
- In a class of 50 boys, 35 boys play Carrom and 20 boys play Chess then the number of boys play both games is
a) 5 b) 30 c) 15 d) 10
- Which of the following is true?
a) $A - B = A \cap B$ b) $A - B = B - A$
c) $(A \cup B)' = A' \cup B'$ d) $(A \cap B)' = A' \cup B'$
- In a city 40% people like only one fruit, 35% people like only two fruits, 20% people like all the three fruits. How many percentage of people do not like any one of the above three fruits?
a) 5 b) 8 c) 10 d) 15
- Which one of the following is an irrational number
a) $\sqrt{25}$ b) $\sqrt{\frac{9}{4}}$ c) $\frac{7}{11}$ d) π
- $0.\overline{34} + 0.\overline{34} =$ a) $0.\overline{687}$ b) $0.\overline{68}$ c) $0.\overline{68}$ d) $0.\overline{687}$
- $4\sqrt{7} \times 2\sqrt{3} =$ a) $6\sqrt{10}$ b) $8\sqrt{21}$ c) $8\sqrt{10}$ d) $6\sqrt{21}$

II Answer any 5 of the following. Question number 14 is compulsory.

5 X 2 = 10

- List the set of letters of the following words in Roaster form.
MISSISSIPPI
- If $n(A) = 0$, Find $n[p(A)]$
- If $A = \{6, 7, 8, 9\}$ and $B = \{8, 10, 12\}$ Find $A \Delta B$.
- If $K = \{a, b, d, e, f\}$, $L = \{b, c, d, g\}$ and $M = \{a, b, c, d, h\}$ then find the following $K \cap (L \cup M)$.
- Find any three rational numbers between $-\frac{7}{11}$ and $\frac{2}{11}$.

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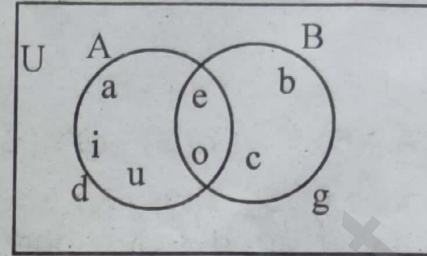


13. Express the following decimal expression into rational numbers. $0.\overline{24}$
14. Express the surds in the simplest form $\sqrt[3]{192}$

III Answer any 5 of the following. Question number 21 is compulsory.

15. From the given Venn diagram, write the elements of 5 X 5 = 25

- i) A ii) B
 iii) A - B iv) B - A
 v) A'



16. Verify the associative property of intersection of sets for $A = \{-11, \sqrt{2}, \sqrt{5}, 7\}$, $B = \{\sqrt{3}, \sqrt{5}, 6, 13\}$ and $C = \{\sqrt{2}, \sqrt{3}, \sqrt{5}, 9\}$
17. If $A = \{x : x \in z, -2 < x \leq 4\}$, $B = \{x : x \in w, x \leq 5\}$ and $C = \{-4, -1, 0, 2, 3, 4\}$ then verify $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.
18. In a college, 240 students play cricket, 180 students play foot ball, 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 atleast one game, then find
 i) the number of students in the college
 ii) the number of students who play only one game.
19. Arrange surds in descending order. $\sqrt[3]{5}$, $\sqrt[2]{4}$, $\sqrt[3]{3}$.
20. Find the value of a and b if $\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$.

21. Write the following in scientific notation :

$$(4000000)^3 \div (0.00002)^4.$$

IV Answer any one of the following.

1 X 8 = 8

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

(OR)

23. Represent 4.863 on the number line.