R. Mukesh IX - B

FIRST MID TERM TEST - 2023

9 - STD MATHEMATICS

TIME: 1.30 Hrs Marks : 50

I. Choose the Correct answer. **7 x 1 = 7**

1. Which one of the following is an irrational number.

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

2. If $B \subseteq A$, $n(A \cap B) =$

   a. $n(A - B)$ b. $n(B)$ c. $n(B - A)$ d. $n(A)$

3. If $A \cup B = A \cap B$

   a. $A \neq B$ b. $A = B$ c. $A \subset B$ d. $B \subset A$

4. If $\sqrt{80} = K\sqrt{5}$ then $K = ?$

   a. 2 b. 4 c. 8 d. 16

5. $\sqrt{27} + \sqrt{12} =$

   a. $\sqrt{39}$ b. $5\sqrt{6}$ c. $5\sqrt{3}$ d. $3\sqrt{5}$

6. For any three Lets A, B and C $(A - B) \cap (B - C)$ is equal to.

   a. A only b. B only c. C only d. ϕ

7. The exterior angle of a triangle is equal to

   a. exterior angles b. interior opposite angles

   c. Alternate angles d. Interior angles.

II. Answer any five the following questions. **5 x 2 = 10**

8. Represent the following numbers in the scientific notation.

   i) 59640000000 ii) 0.0000006000

9. Find the symmetric difference between the following sets.

   $X = \{5, 6, 7\}$ and $Y = \{5, 7, 9, 10\}$

10. Find any three rational number between $\frac{-7}{11}$ and $\frac{2}{11}$

11. The angle of the triangle are in the ratio 1 : 2 : 3, find the measure of the each angle of the triangle.

12. If $A = 20$ let of all even natural number less than 20. Represent the sets in roster form.

13. If A = { 6, 7, 8, 9 } and B = { 8, 10, 12 }. Find A Δ B.

14. Simplify : $\sqrt{63}-\sqrt{175}+\sqrt{28}$

III. Answer any five the following questions. **5 x 5 = 25**

15. 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.

16. U = { a, b, c, d, e, f, g, h }, A = { b, d, f, h } B = { a, d, e, h } then find the sets.
i) A' ii) B' iii) A' ∪ B' iv) A' ∩ B' v) (A ∩ B)'

17. Convert the following decimal numbers in the form of $\frac{p}{q}$, $(p,q\in z, q\neq 0)$.
i) $0.\bar{3}$ ii) $2.\overline{124}$

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

19. $\frac{\sqrt{7}-2}{\sqrt{7}+2}=a\sqrt{7}+b$ then find the value of $\frac{p}{q}$, a, b.

20. Verify A ∩ (B ∪ C) = (A ∩ B) ∪ (A ∩ C) using venn diagrams.

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

IV. Answer any one the following questions. **1 x 8 = 8**

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

(OR)

b) Construct ΔPQR with sides of PQ = 6cm, ∠Q = 60°, QR = 7cm and locate its orthocentre.