CLASS : 9	QUARTERLY EXAMINATION-2023-24	Register Number

MATHEMATICS

Time Allowed : 3.00 Hours] |Max. Marks : 100

PART – A

I   Choose the correct Answer.   14x1=14

1. If $B \subseteq A$ then $n(A \cap B)$ is ----------
   a) $n(A-B)$ b) $n(B)$ c) $n(B-A)$ d) $n(A)$

2. $(A-B) \cap (B-A) = $ ----------
   a) A b) B c) $A \triangle B$ d) ϕ

3. Which of the following is true?
   a) $A-B = A \cap B$ b) $A-B = B-A$ c) $(A \cup B)^l = A^l \cup B^l$ d) $(A \cap B)^l = A^l \cup B^l$

4. In a class of 50 boys, 35 boys play carrom and 20 boys play chess then the number of boys play both game is ----------
   a) 5   b) 30   c) 15   d) 10

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

6. Which one of the following is an irrational number?
   a) $\sqrt{25}$ b) $\sqrt{\dfrac{9}{4}}$ c) $\dfrac{7}{11}$ d) π

7. $0.\overline{34} + 0.3\overline{4} = $ ----------
   a) $0.6\overline{87}$ b) $0.\overline{68}$ c) $0.6\overline{8}$ d) $0.68\overline{7}$

8. $\sqrt{27} + \sqrt{12} = $ ----------
   a) $\sqrt{39}$ b) $5\sqrt{6}$ c) $5\sqrt{3}$ d) $3\sqrt{5}$

9. $(0.000729)^{-3/4} \times (0.09)^{-3/4} = $ ----------
   a) $\dfrac{10^3}{3^3}$ b) $\dfrac{10^5}{3^5}$ c) $\dfrac{10^2}{3^2}$ d) $\dfrac{10^6}{3^6}$

10. The zero of the polynomial $2x+5$ is ----------
    a) $\dfrac{5}{2}$ b) $\dfrac{-5}{2}$ c) $\dfrac{2}{5}$ d) $\dfrac{-2}{5}$

11. Degree of the polynomial $(y^3 - 2)(y^3 + 1)$ is ----------
    a) 9   b) 2   c) 3   d) 6

12. $(a+b-c)^2$ is equal to ----------
    a) $(a-b+c)^2$ b) $(-a-b+c)^2$ c) $(a+b+c)^2$ d) $(a-b-c)^2$

13. The degree of the zero polynomial is ----------
    a) 0   b) 1   c) 2   d) not defined

14. The exterior angle of a triangle is equal to the sum of two ----------
    a) Exterior angles   b) Interior opposite angles
    c) Alternate angles   d) Interior angles

PART - B

Answer any 10 questions. Question No. 28 is compulsory.   10x2=20

15. Write the set of letters of the following words in roaster form
    i) ASSESSMENT   ii) PRINCIPAL

16. If $n(A) = 4$, Find $n[P(A)]$

17. If $A = \{6, 7, 8, 9\}$ and $B = \{8, 10, 12\}$ find $A \triangle B$

18. Test for the commutative property of union and intersection of the sets
    $P = \{x : x$ is a real number between 2 and 7$\}$ and $Q = \{x : x$ is a rational number between 2 and 7$\}$

19. Find any three rational numbers between $\dfrac{-7}{11}$ and $\dfrac{2}{11}$

CH/9/Mat/1

20. Verify that $1 = 0.\overline{9}$
21. Simplify: $4\sqrt[3]{5} + 2\sqrt[3]{5} - 3\sqrt[3]{5}$
22. Represent the following numbers in the scientific rotation.
 i) 569430000000   ii) 0.0000006000
23. Add and find the degree of the resultant polynomial.
 $h(x) = 7x^3 - 6x + 1$, $f(x) = 7x^3 + 17x - 9$
24. If $p(x) = x^2 - 2\sqrt{2}x - 1$, find $p(2\sqrt{2})$
25. Factorise: $2x^2 + 15x + 27$
26. Find GCD of $16x^3y^2$, $24xy^3z$.
27. The angles of a triangle are in the ratio 1:2:3. Find the measure of each angle of the triangle.
28. $P = \{ l, n, p \}$ and $P \cup Q = \{ i, l, m, n, o, p \}$. If P and Q are disjoint sets, then find Q and $P \cap Q$?
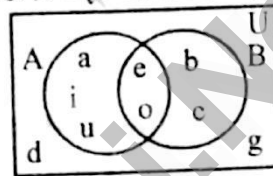
PART - C

10x5=50

Answer the following any 10 questions. Q.No.42 is compulsory.

29. Find the number of subsets and the number of proper subsets of $X = \{x^2 : x \in N, x^2 \leq 100\}$
30. From the given Venn diagram, Write the elements of
 i) A-B ii) B-A
 iii) A^I iv) B^I v) U

31. A survey of 1000 farmers found that 600 grew paddy, 350 grew ragi, 280 grew corn, 120 grew paddy and ragi, 100 grew ragi and corn, 80 grew paddy and corn. If each farmer grew atleast any one of the above three, then find the number of farmers who grew all the three.
32. Verify $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ using Venn diagrams.
33. Express the rational number $1/33$ in recurring decimal form by using the recurring decimal expansion of $1/11$. Hence write $71/33$ in recurring decimal form.
34. Find the 5th root of $\dfrac{1024}{3125}$
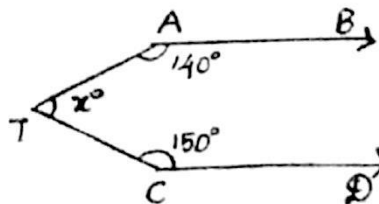35. Arrange in ascending order: $\sqrt[3]{2}, \sqrt[2]{4}, \sqrt[4]{3}$
36. Find the value of m, if (x-2) is a factor of the polynomial $2x^3 - 6x^2 + mx + 4$.
37. Evaluate 98^3 by using identities.
38. Factorise $x^3 - 5x^2 - 2x + 24$
39. Find the product $(4x-5)$ and $(2x^2 + 3x - 6)$
40. In the figure, AB is parallel to CD, Find $x°$.
41. Rationalise the denominator of $\dfrac{5+\sqrt{3}}{5-\sqrt{3}}$
42. Find the value of $\sqrt[4]{400} \times \sqrt[4]{567}$.

PART - D

2x8=16

Answer all the questions.

43. a) Construct the Centroid of $\triangle PQR$ whose sides are PQ = 8cm; QR = 6cm; RP = 7cm.
     (OR)
 b) Draw a $\triangle ABC$, where AB = 6 cm, $\angle B = 110°$ and BC = 5 cm and construct its Orthocentre.
44. a) Draw the graph for y = 3x - 1.
     (OR)
 b) Draw the graph for $y = \left(\dfrac{3}{2}\right)x + 3$

CH / 9 / Mat / 2