

## QUARTERLY EXAMINATION- 2023

CLASS : 9

MATHEMATICS



TIME : 3.00

MARKS : 100

## PART - I

I Answer all the questions.

14 X 1 = 14

- If  $B - A$  is  $B$  then  $A \cap B$  is
  - $A$
  - $B$
  - $U$
  - $\phi$
- Let  $A = \{\phi\}$  and  $B = P(A)$  then  $A \cap B$  is
  - $\{\phi, \{\phi\}\}$
  - $\{\phi\}$
  - $\phi$
  - $\{0\}$
- The set  $P = \{x/x \in \mathbb{Z}, -1 < x < 1\}$  is
  - Singltoon set
  - Power set
  - Null set
  - Subset
- If  $A = \{x, y, z\}$  then the number of  $A$  non empty
  - 8
  - 5
  - 6
  - 7
- Which of the following is not a rational number
  - $\sqrt{\frac{8}{18}}$
  - $\frac{7}{3}$
  - $\sqrt{0.01}$
  - $\sqrt{1}$
- If  $\sqrt{80} = k\sqrt{5}$  then  $k = \dots$ 
  - 2
  - 4
  - 8
  - 16
- The root of the polynomial  $2x + 3 = 0$  is
  - $1/3$
  - $-1/3$
  - $-3/2$
  - $2/3$
- If  $x^{51} + 51$  is divided by  $x + 1$  then the remainder is
  - 0
  - 1
  - 49
  - 50
- If  $\sqrt[3]{9^x} = \sqrt[3]{9^2}$  then  $x = \dots$ 
  - $2/3$
  - $4/3$
  - $1/3$
  - $5/3$
- Value of  $4\sqrt{7} \times 2\sqrt{3} = \dots$ 
  - 6
  - 8
  - 8
  - 6
- Degree of the polynomial  $(y^3-2)(y^3+1)$  is
  - 9
  - 2
  - 3
  - 6
- Angle in a semicircle is .....
  - Right angle
  - A cute angle
  - Obtuse angle
  - reflex angle
- The angle of the triangle are  $(3x-40^\circ)$ ,  $(x+20^\circ)$  and  $(2x-100)$  then the value of  $x$  is .....
  - $40^\circ$
  - $35^\circ$
  - $50^\circ$
  - $45^\circ$
- If  $(2, 3)$  is a solution of linear equation  $2x+3y = k$  then the value of  $k$  is
  - 12
  - 6
  - 0
  - 13

## PART - II

- II i) Answer any 10 questions only ii) Question number 27 is compulsory. 10 X 2 = 20
- If  $A = \{-3, -2, 1, 4\}$  and  $B = \{0, 1, 2, 4\}$  find i)  $A \cap B$  ii)  $B - A$ .
  - How many ways a set can be represented?
  - If  $A = \{a, b\}$  then find the power set of  $A$ .

18. Find any two rational number between  $1/2$  and  $2/3$ .
19. Convert the following decimal in to p/q from , i)  $0.4\bar{5}$
20. Find the value of  $\left(\frac{64}{125}\right)^{-2/3}$ .
21. Rationalize the denominator  $\frac{7}{\sqrt{14}}$ .
22. Find the value of m, if  $(x-2)$  is a factor of the polynomial  $2x^3 - 6x^2 + mx + 4$ .
23. The angle of a triangle are in the ratio  $1 : 2 : 3$  find the measure of each angle of the triangle.
24. If  $A = \{6, 7, 8, 9\}$  and  $B = \{8, 10, 12\}$  find  $A \Delta B$ .
25. If  $P(x) = 6x^2 - 7x + 2$ , and  $q(x) = 6x^3 - 7x + 15$  then find  $p(x) + q(x)$ .
26. Define convex polygon?
27. Write any two properties of parallelogram.
28. Expands the following by using identities.  $(2a-3b)^2$ .

### PART - III

**III i) Answer any ten questions only. ii) Question number 41 is compulsory.  $10 \times 5 = 50$**

29. Verify  $A - (B \cap C) = (A - B) \cup (A - C)$  using venn diagram.
30.  $U = \{a, b, c, d, e, f, g, h\}$   $A = \{b, d, f, h\}$  and  $B = \{a, d, e, h\}$  find the following  
i)  $A^c$       ii)  $B^c$       iii)  $A \cup B^c$       iv)  $A \cap B^c$
31. If  $A = \{b, d, e, g, h\}$   $B = \{a, e, c, h\}$  that  $n(A - B) = n(A) - n(A \cap B)$ .
32. In a party of 45 people, each one likes tea or coffee or both. 35 people like tea and 20 people like coffee. Find the number of people who i) like both tea and coffee  
ii) do not like tea      iii) do not like coffee
33. Write in ascending order.  $\sqrt[3]{2}, \sqrt[3]{4}, \sqrt[3]{5}$
34. Represent 4.863 on the number line.
35. If  $x = \sqrt{5} + 2$  find the value of  $x^2 + 1/x^2$ .
36. Simplify :  $5\sqrt[3]{40} + 2\sqrt[3]{625} - 3\sqrt[3]{320}$
37. Evaluate  $10^3 - 15^3 + 5^3$ .
38. Expand .  $(3x-1)(3x+2)(3x-4)$
39. If  $f(x) = x^2 - 4x + 3$  then find the value of i)  $f(1)$  ii)  $f(-1)$  iii)  $f(2)$  iv)  $f(3)$
40. Factorize  $x^3 - 5x^2 - 2x + 24$ .
41. Verify  $(A \cup B)^c = A^c \cap B^c$  by using venn diagram.
42. The angle of quadrilateral one in the ratio  $2 : 4 : 5 : 7$  find all the angles.

### PART - IV

**Answer the following questions.**

$2 \times 8 = 16$

43. Draw the graph of  $y = 3x - 1$  (OR)  $y = 3/2 x + 3$ .
44. Construct the centroid of  $\Delta PQR$  whose side  $PQ = 8$ cm.  $QR = 6$ cm,  $RP = 7$ cm. (OR)  
Draw the triangle of side 6.5 cm and locate its orthocenter.