

(Part-A)

Q. 1. Choose the correct alternative.

(5)

- i. Which of the following numbers cannot be the area of a square, provided the side of the square is a natural number?
(a) 729 (b) 707 (c) 3844 (d) 1156
- ii. If $x=5$, then the value of the $4x^2 - 12x$ is
(a) 160 (b) 60 (c) 100 (d) 40
- iii. A linear equation in one variable has
(a) Only one solution (b) Two solutions
(c) More than two solutions (d) No solution
- iv. Which of the following numbers is a cube of a negative integer?
(a) -68 (b) -2197 (c) -1056 (d) -3888
- v. Which of the following statements is false?
(a) Every rational number is a natural number
(b) Every negative number is a rational number
(c) Every prime number is a whole number
(d) 0 is a rational number

Q.2. Fill in the blanks-

(4)

- i. 0.000039 in standard form can be expressed as _____.
- ii. Adjacent angles of a parallelogram are _____.
- iii. The value of y for which the expressions $3y-4$ and $2y+1$ become equal is _____
- iv. If only one diagonal of a quadrilateral bisects the other, then the quadrilateral is known as _____.

(Part-B)

Q.3. Find the following and simplify it to lowest term:

$$-\frac{3}{4}x - \frac{1}{5}x - \frac{5}{3} =$$

Q.4. Find the product of $(3a - 5)$ and $(a^3 + 2a^2 - 7)$ (2)

Q.5. The sum of four consecutive integers is 266. What are the integers? (2)

Q.6. PQRS is a rectangle. The perpendicular ST from S on PR divides $\angle S$ in the ratio 2:3.
Find $\angle TPQ$. (2)

- Q.7. Find $243^{-4/5}$ (2)
- Q.8. Which is the smallest number that can be multiplied to 43120 to give a perfect square. (2)
- Q.9. What must be subtracted from $5t^2 - 4tu + 7u^2 - 3$ to get $7t^2 + 3tu - u^2 + 2$? (2)
- Q.10. In a quadrilateral PQRS, $\angle P = 50$, $\angle Q = 50$, $\angle R = 60$. Find $\angle S$. Is this quadrilateral convex or concave? (2)
- Q.11. The volume of a cube is 512 cubic meters. Find the length of the cube. (2)
- Q.12. Students of grade 8 decided to collect money for earthquake relief. The amount (in ₹) collected by each student equals the number of students in the class. If they collected a total of ₹ 2601, how many students are there in the class? (2)
- Q.13. Simplify the expression and evaluate it for $p = -2$ (2)
 $5p^3 - 2p^2 + 17$
- Q.14. Find the cube root of -456533 (2)

(Part-C)

- Q.15. Is 0.6 the multiplicative inverse of $1\frac{4}{6}$? (3)
- Q.16. In a parallelogram ABCD, $\angle A = 120^\circ$, $\angle B = (5x + 10)^\circ$ and $\angle C = 6y$. Find $\angle D$ and the values of x and y . (3)
- Q.17. After 12 years, Reshmi will be 3 times as old as she was 4 years ago. Find her present age. (3)
- Q.18. If $a^x = \sqrt{b} = \sqrt[3]{b} = b^y = \sqrt[3]{a}$, find the value of xyz . (3)
- Q.19. Using suitable identities evaluate the following: (3)
 (a) $123^2 - 77^2$ (b) 102×105
- Q.20. If the square root of 3 is 1.73, then what is the square root of 3267? (3)
- Q.21. Construct a parallelogram ABCD in which $AB = 4$ cm, $BC = 5$ cm and $\angle B = 60^\circ$. (3)
- Q.22. What is the smallest number by which 8640 must be divided so that the quotient is a perfect cube? (3)
- Q.23. Find the value of x . (3)

$$\frac{x}{3} - \frac{1}{4}\left(x - \frac{1}{3}\right) = \frac{1}{6}(x+1) + \frac{1}{12}$$

(Part-D)

- Q.24. Verify the following- (5)
 (a) $(7p - 13q)^2 + 364pq = (7p + 13q)^2$
 (b) $(a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca) = a^3 + b^3 + c^3 - 3abc$
- Q.25. Construct a trapezium ABCD where $AB \parallel CD$, $AD = BC = 3.2$ cm, $AB = 6.4$ cm and $CD = 9.6$ cm. Measure $\angle B$ and $\angle A$. (5)

- Q.26.** ABCD is a parallelogram. The bisector of angle A intersects CD at X and bisector of angle C intersects AB at Y. Is AXCY a parallelogram? Give reason. (5)
- Q.26.** Anushree and Divya are friends. They have an equal amount of money in their pockets. Anushree gives $\frac{1}{3}$ of her money to Divya as her birthday gift. Then Divya throws a party at a restaurant and clears the bill by paying half of the total money with her. If the remaining money in Divya's pocket is ₹ 1600, find the sum gifted by Anushree. (5)