

Section – I (12× ½ = 6)

Note: (i) Answer all the questions.

(ii) Each question carries ½ mark.

- Find HCF of 270 & 900
- Evaluate $3^{2+\log_3 4}$.
- If A and B are two sets such that $A \subset B$ then what is $A \cup B$?
- If -3 is the zero of $p(x) = x^2 - 3x + k$ then find k.
- Reduce the pair of equations in linear form $\frac{3}{x} - \frac{5}{y} = 7$ & $\frac{16}{x} + \frac{10}{y} = 10$
- $2x + y + 5 = 0$ and $3x + 2y - 7 = 0$ represent what types of lines?
- Write $x + \frac{1}{x} = 3$ in the form of quadratic equation.
- Choose the correct answer satisfying the following statements.

Statement (A) : If α, β, γ are zeroes of $x^3 - 2x^2 + qx - r$ and $\alpha + \beta = 0$ then $2q = r$

Statement (B) : If α, β, γ are zeroes of $ax^3 + bx^2 + cx + d$ then $\alpha + \beta + \gamma = -\frac{b}{a}$,

$$\alpha\beta + \beta\gamma + \gamma\alpha = \frac{c}{a} \text{ and } \alpha\beta\gamma = -\frac{d}{a}$$

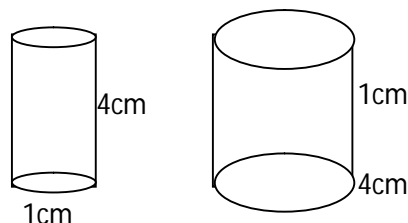
- A) A is true B is false B) both true C) A is false B is true D) both false
- Find the common difference of the A.P. $\frac{1}{3}, \frac{5}{3}, \frac{9}{3}$
 - Mention the shape of the solid when two cubes attach one above another.
 - Choose the correct answer satisfying the following statements.
Statement (A) : The ratio of volume of cone and cylinder of same base and same height is 3:1
Statement (B): The ratio of volume of sphere and cone of same radius and same height is 2:1
A) A is true, B is false B) both false C) both true D) A is false, B is true
 - Draw rough graph of a quadratic equation $ax^2 + bx + c = 0$ and $b^2 = 4ac$

Section – II (8× 1 = 8)

Note: (i) Answer all the questions.

(ii) Each question carries 1 mark.

- Write all the subsets of $A = \{a, b, c\}$
- Check whether 15^n can end with digit 0 for any natural number 'n'
- Write the polynomials $p(x), g(x), q(x)$ and $r(x)$ in which degree $p(x) = \text{degree } q(x)$
- For what value of 'k' the pair of equations $3x+4y+z = 0$ and $9x+12y+k = 0$ represent coincident lines.
- Check whether -150 is a term of the A.P. : 11, 8, 5, 2,
- Represent the following situation in the form of a quadratic equation.
"The product of two consecutive integers is 306".
- Find curved surface area of a hemispherical bowl whose radius is 3.5cm
- Which barrel shown in the adjacent figure can hold more water?

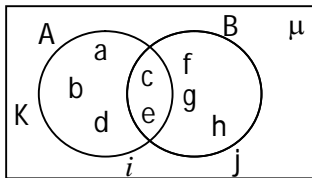


Section – III (8× 2 = 16)

Note: (i) Answer all the questions.

(ii) Each question carries 2 marks.

21. Explain why $2 \times 11 \times 13 + 5 \times 11 \times 13$ is a composite number.
22. The larger of two supplementary angles is double the smaller. Then find the angles.
23. The difference of reciprocals of Rehman's ages (in years) 3 years ago and five years from now is $\frac{2}{3}$. Find his present age.
24. Which term of GP $\sqrt{3}, 3, 3\sqrt{3}, \dots$ is 729
25. Find the zeroes of polynomial $4s^2 - 4s + 1$ and verify relation between zeroes and co-efficients.
26. Observe the following Venn diagram and write the answers.



- (i) $n(A \cup B)$
- (ii) $n(\mu)$

27. A company wanted to manufacture 500 hemispherical basins from a thin steel sheet. If the radius of the basin is 21cm. Find the required area of steel sheet to manufacture above hemispherical basin.
28. Draw a rough graph of $y = 2x + 3$

Section – IV (5×4 = 20)

29. a) DWACRA is supplied cuboidal shaped wax block with measurements 88cm × 42cm × 35cm from this how many number of cylindrical candles of 2.8 cm diameter and 8cm of height can be prepared.
(OR)
b) A train travels 360km at a uniform speed. If the speed had been 5km/hr more, it would have taken 1 hour less for the same journey. Find the speed of train.
30. a) If the sum of first 9 terms of an A.P. is 81 and that of 15 terms is 225, find the sum of first n terms.
(OR)
b) Spherical marbles of diameter 1.4cm are dropped into a cylindrical beaker of diameter 7cm, which contains some water. Find the number of marbles that should be dropped into the beaker, so that water level rises by 5.6 cm.

31. a) Prove that $\sqrt{3} + 2\sqrt{5}$ is an irrational number.

(OR)

b) If the zeroes of the polynomial $x^3 - 3x^2 + x + 1$ are $a - b, a, a + b$. Find a and b.

32. a) If $A = \{x / x \in w, x < 10\}$, $B = \{x / x \text{ is a factor of } 10\}$, $C = \{1^2, 2^2, 3^2, \dots, 10^2\}$ then find

- i) $A \cup B$ ii) $A \cap B$ iii) $A - C$ iv) $B - C$

(OR)

b) Rohan's mother is 26 years older than him. the product of their ages after 3 years will be 360. Find Rohan's present age.

33. a) Draw the Graph of $y = x^2 - x - 6$ and find zeroes.

(OR)

b) Solve the equations $2x + y = 4$ and $3x - 2y = \frac{5}{2}$ graphically and find the solution.