

PR X (SE) 20
Mathematics (New)
10th (Reappear)

Note: Time allowed for Section – B and Section – C is 2 Hours and 40 minutes.

Marks: 36

Section – B
Q-II Attempt any NINE parts. Each part carries FOUR marks.

1. Solve: $5x^2 + 10x - 840 = 0$ by completing the square.
2. Solve: $5^{x+1} + 5^{2-x} = 126$
3. Find the cube roots of -27 .
4. The sum of the squares of three consecutive integers is 50. Find the integers.
5. Use synthetic division to find the value of "k" if -2 is a zero of the equation $x^3 + 4x^2 + kx + 8 = 0$.
6. Solve the equation. $\frac{\sqrt{3x+2} + \sqrt{x}}{\sqrt{3x+2} - \sqrt{x}} = \frac{4}{1}$
7. Resolve the fraction $\frac{x^2 + 2}{(x+2)(x^2 + 5x + 6)}$ into partial fractions.
8. Domain of binary relation $R = \{(x,y) | y=2x\}$ is the set $\{0,4,8\}$, find range of R.
9. A set of data contains the values as 148, 145, 160, 157 and 160. Show that Mode > Median > Mean
10. If $\sin \theta = \frac{4}{5}$ and $\frac{\pi}{2} < \theta < \pi$, then find other trigonometric ratios.
11. A light house is 150 m above the sea level. Angle of depression of a boat from its top is 60° .
Find the distance between the boat and the light house.
12. let $A = \{1,2,3,4\}$ and $B = \{5,6,7,8\}$ then find " $A \times B$ " and write a bijective function from "A" to "B".

Marks: 24

Section – C

Note : Attempt any THREE questions. All questions carry equal marks.

- Q-III Prove that perpendicular from the centre of a circle on a chord bisect it.
- Q-IV Prove that two tangents drawn to a circle from a point outside it, are equal in length.
- Q-V Prove that "The angle in a semi-circle is a right angle".
- Q-VI Circumscribe a square about a circle of radius 5 cm.