



6. Find the rate of interest per annum if the simple interest on a Principal of Rs. 5,000 is 800 for 4 years.
7. What are the types of surds ?
8. What do you mean by symmetric matrix ?

9. Show that $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ is idempotent.

10. Solve $8x + 7 = 6x + 18$.

PART – C

Answer **any six** questions (**not** exceeding **one** page). **Each** carries **three** marks.

11. How much coffee of variety A, costing Rs. 5 a kg should be added to 20 kg of type B coffee at Rs. 12 a kg so that the cost of the two coffee variety mixture be worth Rs. 7 a kg ?
12. Solve $y = 3(x + 1)$
 $4x = y + 1$.
13. Find the effective rate of interest if interest is calculated at 8% quarterly.
14. In a survey it was found that 21 people liked product A, 26 liked product B and 29 liked product C. 14 people liked products A and B, 12 people likes products C and A, 14 people liked products B and C and 8 liked all the three products, find how many liked product C only.

15. Find the rank of $\begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$.

16. An investor intends purchasing a 3 year Rs. 1,000 par value bond having nominal interest rate of 10%. At what price the bond may be purchased now if it matures at par and the investor requires a rate of return of 14% ?
17. Explain the distributive law of set operation.

18. If $A = \begin{bmatrix} 0 & 1 \\ 2 & 3 \end{bmatrix}$ $B = \begin{bmatrix} 2 & -1 \\ 6 & 5 \end{bmatrix}$ show that $AB \neq BA$.



PART – D

Answer **any two** questions. **Each** carries **eight** marks.

19. Solve the following equations using Cramer's rule

$$3x + 2y + z = 6$$

$$2x - 3y + 3z = 2$$

$$x + y + z = 3$$

20. Solve $x - y = 2$

$$2x^2 + 5y^2 = 23.$$

21.
$$\begin{bmatrix} 5 & -6 & 4 \\ 7 & 4 & -3 \\ 2 & 1 & 6 \end{bmatrix} \times \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 15 \\ 19 \\ 46 \end{bmatrix}$$
 find the values of x, y and z.
