Note: - You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

SECTION-A

Q.1	Questions	A	B	C	D
1.	The ratio $\frac{4}{9}:\frac{1}{3}$ in lowest term is:	4:3	3:4	9:3	3:1
2.	20% of 1250 is:	25	250	350	200
3.	The simple interest of Rs.500 borrowed for 4 Years @10% per annum is:	Rs. 720	Rs. 200	Rs. 450	Rs. 350
4.	If $f(x)=4x-3$ then $f(2)$ is equal to:	9	5	1	-3
5.	If $3x+2=2x+8$ then	$x=6$	$x=5$	$x=4$	$x=3$
6.	The roots of the equation $x^2+2x=0$ are :	0,-2	0,2	2,-2	0,1
7.	Conversion of 13 into binary number is:	$(1110)_2$	$(1010)_2$	$(1101)_2$	$(1001)_2$
8.	21 in binary system is:	$(1011)_2$	$(10110)_2$	$(1001)_2$	$(10101)_2$
9.	A square matrix A is called singular if:	$|A|\neq 0$	$|A|=0$	$|A|<0$	$|A|>0$
10.	if $\begin{vmatrix} k-2 & 1 \\ 5 & k+2 \end{vmatrix}=0$ then k is equal to :	3	-3	± 3	0

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Note :- Section **B** is compulsory. Attempt any **Two** Questions from Section **C**.

SECTION-B

2.   **Write short answers to any Six parts.**   (6 x 2 = 12)

  i.   Define inverse proportion and give an example.

  ii.   What is simplest ratio between 24 and 64.

  iii.   Find the amount whose 20% is Rs. 500.

  iv.   Define ordinary annuity and write its formula.

  v.   Find the simple interest on Rs. 5000 for 10 years at 8% Per annum.

  vi.   Solve the equation $\dfrac{9}{x+4} = \dfrac{5}{x-8}$

  vii.   Solve the equation $2(x+4) = 5x - 28$

  viii.   Find the quadratic equation whose roots are -9 and 7

  ix.   What is a quadratic equation? Give an example.

3.   **Write short answers to any Six parts.**   (6 x 2 = 12)

  i.   Define even function and give an example.

  ii.   Define domain and range of a function.

  iii.   Convert $(1101)_2$ into decimal system.

  iv.   Add $(1111)_2$ and $(1010)_2$

  v.   Subtract $(111001)_2$ and $(1001)_2$

  vi.   Define scalar matrix and give an example.

  vii.   Find value of x if the matrix $A = \begin{bmatrix} 1 & 3 \\ 2 & x \end{bmatrix}$ is singular

  viii.   Find AB if, $A = \begin{bmatrix} 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 5 \\ 3 \end{bmatrix}$

  ix.   Define non-singular matrix and give one example.

SECTION-C

Each question carries 4 + 4 = 8 Marks

4.(a)   Find the net amount to be paid, when a discount of 3% was allowed on amount Rs. 10200/=

  (b)   Calculate the compound interest earned for Rs. 5000/= invested for 6 years @7% per annum.

5.(a)   The sum of two numbers is 12 and twice the first is 6 greater than four times of the second. Find the two numbers.

  (b)   Find the slope and angle of inclination joining the points $P_1(-2,4)$ and $P_2(5,11)$

6.(a)   Solve the following system by using matrix method:
$$2x + y = 25$$
$$x - y = 5$$

  (b)   Solve the following by changing into decimal system:
$$\{(101111)_2 + (111000000)_2\} - (39)_{10}$$