BASIC MATHEMATICS

Duration: 45 minutes   Marks: 20

Q1) Fill in the blanks.   (5)

(a) LCM of 36 and 90 is _____.

(b) GCD of 18 and 84 is _____.

(c) If $B = \begin{bmatrix} 3 & 1 \\ 4 & 4 \end{bmatrix}$ then $|B| = $ _____.

(d) If $|A|=0$ then A is called _____ matrix.

(e) If order of matrix A is $m \times p$ and order of matrix B is $p \times n$. Then order of matrix AB is _____.

Q2) Answer **ANY 3** of the following questions.   (3×5=15)

(a) Find the inverse of matrix $A = \begin{bmatrix} 1 & -3 & 2 \\ 2 & 5 & -1 \\ 3 & 1 & 4 \end{bmatrix}$.

(b) Solve the following equations using cramer's rule.
$$x + 4y + 2z = 7$$
$$8x + 4y + z = 13$$
$$x + y + z = 2$$

(c) Find the values of x, y, z if $\begin{bmatrix} x + 2y & y + 3z \\ x - y & y - 2z \end{bmatrix} = \begin{bmatrix} 4 & 7 \\ 1 & -3 \end{bmatrix}$.

(d) If $A = \begin{bmatrix} 2 & 1 \\ 2 & 4 \end{bmatrix}$ & $B = \begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix}$ find matrix X such that $2X + 3A - 4B = 0$.

(e) Two numbers are in the ratio 2:3. If 2 is subtracted from the first and 2 is added to the second, the ratio becomes 1:2. Find the sum of the numbers.