CLASS – 10+2

SUBJECT – MATHS

TIME: 1 HOUR  CHAPTER – Matrices and Determinants.  M.M: 30

Q.1 If $\begin{bmatrix} 2x+1 & 5x \\ 0 & y^2+1 \end{bmatrix} = \begin{bmatrix} x+3 & 10 \\ 0 & 26 \end{bmatrix}$ Find the value of $x+y$. (2)

Q.2 Find a matrix A such that $2A-3B+5C=0$ where $B = \begin{bmatrix} -2 & 2 & 0 \\ 3 & 1 & 4 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 0 & -2 \\ 7 & 1 & 6 \end{bmatrix}$. (2)

Q.3 Find the value of $x$ such that $\begin{bmatrix} 1 & x & 1 \end{bmatrix} \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$ (2)

Q.4 If $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then find K so that $A^2 = 8A + KI$. (2)

Q.5 If A is square matrix such that $A^2 = I$, then find the value of $(A-I)^3 + (A+I)^3 - 7A$. (2)

Q.6 If the matrix $A = \begin{bmatrix} 0 & a & -3 \\ 2 & 0 & -1 \\ b & 1 & 0 \end{bmatrix}$ is skew symmetric, find the value of 'a' and 'b'. (2)

Q.7 Find the value of $x$ if $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$. (1)

Q.8 For what value of $x$ the matrix $A = \begin{bmatrix} 1 & -2 & 3 \\ 1 & 2 & 1 \\ x & 2 & -3 \end{bmatrix}$ is singular? (1)

Q.9 Find K if the area of $\triangle ABC$ is 3 sq. units and $A(1,3)$ $B(0,0)$ and $C(K,0)$. (2)

Q.10. If A is a square matrix of order 3 such that $|A| = 2$ then write the value of $|adj(adj A)|$. (1)

Q.11 Show that $A = \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix}$ satisfies the equation $A^2 - 6A + 17I = 0$ Hence Find $A^{-1}$. (2)

Q.12 Find $A^{-1}$ where $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & -4 \end{bmatrix}$ Hence solve the system of eq$^{ns}$ $x+2y-3z=-4$, $2x+3y+2z=2$, $3x-3y-4z=11$. (3)