WORK SHEET BASED ON FOCUS AREA
CHAPTER – 4
DETERMINANTS

1) a) Evaluate $\begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$

b) Find x if $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$

2) If A = $\begin{bmatrix} 1 & 4 \\ -1 & 2 \end{bmatrix}$

a) Find adj A

(b) find $|A|$

(c) Find A^{-1}

3) If A = $\begin{bmatrix} 1 & -3 & 1 \\ 2 & 0 & 4 \\ 1 & 2 & -2 \end{bmatrix}$

a) Find $|A|$

b) find the minor and cofactor of the elements -3 and 4

4) Let A = $\begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$

a) Is A Singular

b) find adj A

c) find A^{-1}

5) If $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$

(a) find $|A|$

(b) Find adj A

(c) Solve

$2x - 3y + 5z = 11$

$3x + 2y - 4z = -5$

$x + y - 2z = -3$

6) a) Value of the determinant $\begin{vmatrix} \sin 10 & -\cos 10 \\ \sin 80 & \cos 80 \end{vmatrix}$ is

(a) -1 (b) 0 (c) 1 (d) -2

b) If A = $\begin{bmatrix} a & 1 \\ 1 & 0 \end{bmatrix}$ is such that $A^2 = I$ then the value of *a* is

(a) -1 (b) 1 (c) 2 (d) 0

7) Consider the following system of equations

$x + y + 3z = 5$

$x + 3y - 3z = 1$

$-2x - 4y - 4z = -10$

(a) Convert the given system in form A X = B

(b) Find A^{-1}.

(c) Hence solve the system of equations.

8) Solve the system of equations

$x - y + z = 4$

$2x + y - 3z = 0$ using matrix method.

$x + y + z = 2$

9) A= $\begin{bmatrix} 2 & 5 \\ 3 & 2 \end{bmatrix}$

(a)find Adj A

(b) Find A^{-1}

(c) using A^{-1} solve the system of linear equations $2x + 5y=1$, $3x+2y=7$

10) A= $\begin{bmatrix} 1 & 1 & 2 \\ 2 & -1 & 3 \\ 3 & -1 & 1 \end{bmatrix}$

(a) find $|A|$

(b) Find the cofactors of all the elements of A.

(c) Find adj A

(d) Find A^{-1}

11) Consider A = $\begin{bmatrix} 3 & 7 \\ 2 & 5 \end{bmatrix}$ B = $\begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$

(1) Find A^{-1} and B^{-1}

(2) Find AB

(3) Verify that $(AB)^{-1} = B^{-1} A^{-1}$

12) A= $\begin{bmatrix} 1 & 3 \\ 5 & 6 \end{bmatrix}$

(a) Find $|A|$

(b) Find adj A

(c) Verify that $AA^{-1} = I$