GLS UNIVERSITY
Faculty Of Computer Applications & Information Technology
Integrated IMScIT Programme
221601104 Mathematics for Computer Science -I
Assignment-III
Unit-3 Determinants

1 Find the determinant of the given Matrices:

a) $M = \begin{pmatrix} 1 & -1 \\ -2 & 1 \end{pmatrix}$

b) $M = \begin{pmatrix} 15 & 10 \\ 3 & 2 \end{pmatrix}$

c) $M = \begin{pmatrix} 2 & 3 & 1 \\ -1 & 2 & 3 \\ 3 & 2 & -1 \end{pmatrix}$

d) $M = \begin{pmatrix} 1 & -6 & 5 \\ 2 & 2 & 5 \\ -1 & -4 & 1 \end{pmatrix}$

2 Write Minors and Cofactors of the elements of following determinants:

1. (i) $\begin{vmatrix} 2 & -4 \\ 0 & 3 \end{vmatrix}$ (ii) $\begin{vmatrix} a & c \\ b & d \end{vmatrix}$

2. (i) $\begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$ (ii) $\begin{vmatrix} 1 & 0 & 4 \\ 3 & 5 & -1 \\ 0 & 1 & 2 \end{vmatrix}$

3 Find the inverse of given matrices:

a) $A = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$

b) $A = \begin{pmatrix} -3 & -2 \\ 3 & 3 \end{pmatrix}$

c) $A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$

d) $A = \begin{pmatrix} 1 & 2 & -3 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{pmatrix}$

4 Solve given system of equations using Cramer's rule:

(i) $5x + 3y = 17$; $3x + 7y = 31$

(ii) $2x + y - z = 3$, $x + y + z = 1$, $x - 2y - 3z = 4$

(iii) $x + y + z = 6$, $2x + 3y - z = 5$, $6x - 2y - 3z = -7$