M - 107

KING SAUD UNIVERSITY

FULL MARKS: 40

DEPARTMENT OF MATHEMATICS (SEMESTER I, 1433-1434) FIRST MID-TERM

TIME: 90min

Question: 1. Use Gaussian elimination method to solve the system of linear equations

$$x + y + 2z = 9$$

$$2x + 4y - 3z = 1$$

$$3x + 6y - 5z = 0$$
[10]

Question: 2. Find condition on a, b, and c for which the following system is consistent,

[6]

$$x-2 y + 5z = a$$

 $4x - 5y + 8z = b$
 $-3x + 3y - 3z = c$

Question: 3. Solve the system of equations by finding A^{-1} by using Elementary matrix method

$$x + y - z = -1$$

 $x + y + z = 3$
 $x - y + z = 3$ [10]

Question: 4. (a) Find matrix A if
$$A^{-2} = \begin{bmatrix} 9 & 0 \\ 0 & 4 \end{bmatrix}$$
 [4]

(b) Solve the system of equation

$$x + y + 2 z = 1$$
$$2x + y = -z$$
$$x + z = 2$$

By using Crammer's rule. [10]