KING SAUD UNIVERSITY **FULL MARKS: 40**

M - 107 **DEPARTMENT OF MATHEMATICS** **TIME: 90min**

(SEMESTER I, 1433-1434) FIRST MID-TERM

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]**

$$x - 2y + 5z = a$$
$$4x - 5y + 8z = b$$
$$-3x + 3y - 3z = c$$

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

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

By using Crammer's rule. **[10]**