معهد هندسة و تكنولوجيا الطيران

First Semester 2019-2020 Mid – Term exam

Answer All questions Time: 1 Hour Math III: 2nd Year Aer. and Comm. Eng.

(1)Solve the linear systems:

(a) $x + 2y - z = 6,\ 2x - y + 2z = 9,\ -x + y + z = 3.$

(b) $x + 2y - z = 6,\ 2x - y + 2z = 9,\ 3x + y + z = 15.$

(2)A chemical compound is available in three concentrations, 1 mg /bottle, 2 mg / bottle and 4 mg /bottle. Prepare 10 bottles of concentration 3 mg / bottle by mixing whole several bottles of each type. Find one possible solution.

(3)Write the matrix of the linear transformation: $L : R^3 \to R^2$ where

$L(x, y, z) = (x + y - z,\ 2x - y + z)$

(4)Solve the L.P problem:

Maximize $f = x - 3y + 3z$

Subject to $2x + y - z \leq 4,\ 4x - 3y \leq 2,\ -3x + 2y + z \leq 3,\ x, y, z \geq 0.$

Good Luck *Dr. Mohamed Eid*