Islington College
Module Code: MA4001NI Logic and Problem Solving
Graphical solution to Linear Programming

1.   Solve the following LPP graphically ,
Maximize Z = 5x +7y
Subjected to the constraints,
3x +2y ≤ 12,
2x + 3y ≤ 13,
x, y ≥ 0
(2,3)

2.   A watch dealer wishes to buy new watches and has two models M1 and M2 to choose from. Model M1 costs $100 and M2 costs $200.In view of the showcase of the dealer, he wants to buy watches not more than 30 and can spend up to $4000. The watch dealer can make a profit of $20 in M1 and $50 in M2.Formulate the mathematical model and find graphically how many of each model should he buy to obtain maximum profit? **(20,10)**

3.   A baker has 90, 80 and 50 units of ingredients A, B and C respectively. A leaf of bread requires 2 ,1 and 1 units of A ,B and C respectively and a cake requires 1,2 and 1 units of A,B and C respectively. If a loaf of bread sells for a profit of $ 0.3 and a cake for $ 0.4, how many of each should be baked so that his profit is maximize. Use graphical method. **(20,30)**

4.   Solve the following LPP graphically ,

a.   Maximize Z = 2x + 3y
Subjected to constraints,
x + y ≤ 1
-3x + y ≥ 3
x, y ≥ 0
        (0,1)

b.   Minimize Z = 5x + 3y
Subjected to constraints,
2x + y ≤ 6
x ≤ 2
x, y ≥ 0 **(2,0)**

5.   Consider two different types of food stuffs F1 and F2 .Assume that these food stuffs contain vitamins A, B and C. Minimum daily requirements of these vitamins are 1 mg of A, 50 mg of B and 10 mg of C. Suppose that food F1 contains 1 mg of A, 100 mg of B and 10 mg of C where food F2 contains 1 mg of A, 10 mg of B and 100 mg of C .Cost of one unit of food F1 is $1 and that of F2 is $1.5. Use graphical method to find the minimum cost that would supply the minimum requirements of each vitamin.
(0,1)

THE END