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SCHOOL OF MANAGEMENT
DOON UNIVERSITY
MID SEMESTER EXAMINATION
IMBA-IV SEMESTER
IMBA-401
Quantitative Techniques
March 2017

Attempt any 4 Questions. All questions carry equal Marks

Q1. Define any two of the following:
(a) Poissen Distribution (b) Length of the System (c) Degenerate Solution

Q2. What is the importance of quantitative analysis in Business Decision Making.

Q3. A Firm produces three A, B and C. It uses two types of raw materials I and II of which 5,000 and 7,500 units, respectively, The raw material requirements per unit of the products are given below:

Requirement per Unit of Product			
Raw Material	A	B	C
I	3	4	5
II	5	3	5

The labour time for each unit of product A is twice as that of product B and Three times that of product C. The entire labour force of the firm can produce the equivalent of 3,000 units. The minimum demand for the three products is 600, 650 and 500 units respectively. Also the ratio of the number of units produced must be equal to 2 : 3 : 4. Assuming the profits per units of A, B and C are 50, 50 and 80, respectively, formulate the problem as a linear programming problem in order to determine the number of units of each product which will maximise the profit.

Q4. Solve graphically:

Minimise
Subject to

$$Z = 6x_1 + 14x_2$$

$$5x_1 + 4x_2 \geq 60$$

$$3x_1 + 7x_2 \leq 84$$

$$x_1 + 2x_2 \geq 18$$

$$x_1, x_2 \geq 0$$

Q5. Maximise
Subject to

$$Z = 40x_1 + 35x_2 \quad \text{Profit}$$

$$2x_1 + 3x_2 \leq 60 \quad \text{Raw Material}$$

$$4x_1 + 3x_2 \leq 96 \quad \text{Labour Hours Constraint}$$