University Institute of Applied Management Sciences
Panjab University, Chandigarh

End Semester Examinations- MBA (All Sectoral Branches) –IV Sem-Sept, 2020

Important Instructions:

1) Please download the Question Paper immediately on receipt of the same.
2) Mark your attendance online After Receiving the Question Paper
3) Please put Roll No, Subject Code, Page No. and Signatures on all pages of the answer sheet
4) Maximum Number of pages in Answer Sheet are 16.
5) Timing of Examinations are 10 am to 12 noon
6) Attempt ANY THREE Questions. ALL Questions carry Equal Marks
7) Give relevant example as per your Sectoral Area of Study/Functional Area
8) Preserve the original Answer Sheet. It may be required to be submitted at a later date.
9) Email the scanned copy of the Answer Sheet (Maximum 16 pages) at uiamsexam@pu.ac.in

MBA-RM/BI/IT/IM/PM/HM-4004   **Operations Research**
M.M 50   **Time: 2 Hrs**

Note:
- (i). Question Paper contains Six Questions
- (ii). All Questions carry equal marks
- (iii). Students are required to attempt **ANY THREE QUESTIONS**
- (iv). in the functional subjects candidates are instructed to give Suitable illustrations from their sectoral area of specialization in support of their answer.

Q1: Use the graphical method to solve the following LP problem.
Maximize $Z = 45x_1 + 30x_2$
   subject to the constraints
   $5x_1 + 3x_2 \leq 80$
   $4x_1 + 6x_2 \leq 100$
   and $\qquad x_1, x_2 \geq 0.$

Q2: Write short notes on:
a) Trans-shipment Problem   b) Decision under certainity
c) Minimization Problems in OR   d) CPM

Q3: Explain game theory and the underlying assumptions therein. Discuss the relevance of game theory in modern day businesses.

Q4: A company has three production facilities S_1, S_2 and S_3 with production capacity of 7, 9 and 18 units (in 100s) per week of a product, respectively. These units are to be shipped to four warehouses D_1, D_2, D_3 and D_4 with requirement of 5, 8, 7 and 14 units (in 100s) per week, respectively. The transportation costs (in rupees) per unit between factories to warehouses are given in the table below:

	D_1	D_2	D_3	D_4	Capacity
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	34

Formulate this transportation problem as an LP model to minimize the total transportation cost.

Q5: Write short notes on
   a) Uncertainty of PERT
   a) Resource Leveling

Q6: What is the need of Decision theory? Explain steps of Decision-making process. Explain
   various types of Decision-making environments with relevant examples.