Total No. of Questions : 5]

P8034

SEAT No. :

[Total No. of Pages : 3

[5860]-302

M.B.A. - II
302-GC-12 : DECISION SCIENCE
(2019 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

1) Each question carries 10 marks.

2) Graph paper will not be provided.

3) Use of non-scientific calculator is allowed.

Q1) Solve any five: [5×2=10]

a) Define Probability.

b) List techniques of initial solution for Transportation problem.

c) Enlist various methods of decision making under uncertainity.

d) What is 2×2 zero sum game?

e) Enumerate any two quantitative techniques for optimal decision in business.

f) List the drawbacks of graphical solution in LPP.

g) Define total float in Network diagram.

h) Define (M/M/I, Infinite, FIFO) in Queuing theory.

Q2) Solve any two of the following: [2×5=10]

a) Discuss the use of CPM & PERT in Project Management.

b) Explain the role of quantitative techniques in decision making.

c) Describe the steps in Solving Assignment Problem.

P.T.O.

Q3) Solve any one of the following: [1×10=10]

a) A small bank is allocating maximum 0%. Rs. 21,00,000/- for personal & car loans. The interest rates per annum are 11% for car loan & 13% for personal loans. The loans are repaid at the end of one year period. The amount of personal car cannot exceed 40% of the car loans. Past experience has shown that bad debts to 1.2% of all personal loans. Formulate & solve the above problem to find the optimum loan allocations.

b) Following is the distribution of defective pieces in a manufacturing process of a MNC in Pune.

No. of defective items	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Consider the following sequence of random numbers.

38, 58, 19, 51, 66, 15, 24, 78, 42, 08

Using this sequence, simulate the number of defective items for next 10 days.

Q4) Solve any one of the following: [1×10=10]

a) In a group of 1000 customers, there are 650 who uses Jio connection, 400 uses Airtel connection and 150 uses both connections, Jio & Airtel. If a customer is selected at random, what is the probability that he uses :

i) Jio only

ii) Airtel only

iii) Only one of the two connection and

iv) At least one of the two connections.

b) A repairman is to be hired to repair machines which breakdown at an average rate of 6 per hour. The breakdown follow poisson distribution. The productive time of a machine is considered to cost Rs. 20 per hour. Two repairman Mr. X & Mr. Y have been interviewed for this purpose Mr. X charged Rs. 100 per hour. and he services breakdown machines at rate of 8 per hour. Mr. Y demand Rs. 140 per hour and he services at an average rate of 12 per hour. Which repairmen should be hired? (Assumes 8 hours shift per day).

Q5) Solve any one of the following: [1×10=10]

a) Given the following:

Activity	1-2	2-3	2-4	2-5	3-7	4-5	4-7	5-6	6-7
Duration (in days)	3	4	4	5	4	2	2	3	2

Construct the project network. Calculate project duration & determine critical path.

b) Determine the optimal strategies for A & B in the following game. Obtain value of game.

B's Strategy

		B1	B2	B3
	A1	9	8	-7
A's	A2	3	-6	4
Strategy	A3	6	7	7