

Total No. of Questions : 5]

SEAT No. :

P3865

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[5265] - 2006

M.B.A.

**204 : DECISION SCIENCE
(2016 Pattern) (Semester - II)**

Time : 2¼ Hours]

[Max. Marks :50

Instructions to the candidates:

- 1) Each question has an internal option.
- 2) Each question carries 10 marks.
- 3) Graph paper will not be provided.
- 4) Non Scientific calculator is allowed.

Q1) A project manager has 4 subordinates and 4 task. His estimate of the time that each would take to perform each task is given in the matrix below. How should be the task allocated, so that the total man hours are minimized. [10]

	I	II	III	IV
1	8	26	17	11
2	13	28	4	26
3	38	19	18	15
4	19	26	24	10

OR

Find the initial feasible solution for a given transportation matrix to reduce the cost using VAM method. [10]

	D ₁	D ₂	D ₃	D ₄	Supply
01	5	3	6	2	19
02	4	7	9	1	37
03	3	4	7	5	34
Demand	16	18	31	25	90
					90

Q2) Solve the given LPP using graphical method to maximize $Z = 100x + 150y$,

Subject to, $2x + y \leq 30$,

$x + 3y \leq 45$

Where, $x \geq 0, y \geq 0$.

[10]

OR

P.T.O.

A bakery keeps stock of branded cake. Daily demand based on the past experience and its probability is given below.

Demand	0	15	25	35	45	50
Probability	0.01	0.15	0.20	0.50	0.12	0.02

Consider the following sequence of random number - and 48, 78, 9, 51, 56, 77, 15, 14, 68 and 09.

- Simulate the demand for next 10 days.
- Find the Average demand of Cake.
- Find the stock situation of cake at the end of each day, if the owner of bakery decides to make 35 cakes every day. [10]

Q3) For the given profit matrix, find the optimal strategy using, [10]

- Max Mini criteria.
- Laplace criteria.
- Hurwicz criteria ($\alpha = 0.7$).

	N_1	N_2	N_3	N_4
S_1	30	10	10	8
S_2	40	-15	5	7
S_3	50	20	-6	10

OR

Solve the following game using dominance rule. [10]

		Player B				
		1	2	3	4	5
Player A	I	1	3	2	7	4
	II	3	4	1	5	6
	III	6	5	7	6	5
	IV	2	0	6	3	1

Q4) We have 5 jobs each of which must go through the machines A, B & C. in the order ABC. Processing time in (hrs.) is as follows : [10]

Job	1	2	3	4	5
Machine A	5	8	6	9	5
Machine B	2	1	4	5	3
Machine C	3	7	5	6	7

Determine the sequence of the jobs that will minimize the total elapsed time. Also find the idle time for all machines as well.

Write short notes on (any Two) :

[10]

- a) Concept of PERT and CPM.
- b) Concept of Network diagram with example.
- c) Dummy activities and events with example.
- d) Floats and its types with example.

Q5) A box contains 6 white and 8 red balls. The Second box contain 9 white and 10 red balls. One ball is drawn at random from the first box and put in the second box without noticing its colour. A ball is drawn at random from Second box. What is a probability that it is red? [10]

OR

In an intelligence test administered to 1000 students, the average score was 42 and the standard deviation 24. [10]

Find -

- a) The number of students lying between 30 and 54 marks.
- b) The value of score exceeded by top 100 students.

(Given Z at 0.5 = 0.1915, Z at 1.28 = 0.4).

