Total No. of Questions : 10]

SEAT No : ____

P3969

[Total No. of Pages : 3

[5070]-2004
M.B.A.
204 : DECISION SCIENCE
(2013 Pattern) (Semester - II)

Time : 2½ Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Attempt 5 (five) questions.***
2) ***Each question has an internal option.***
3) ***Each question carries equal marks.(10)***
4) ***Figures to the right indicate mark for questions.***
5) ***Graph will not be provided, Draw a diagram on answer sheet.***
6) ***Non scientific calculator is allowed.***

Q1) Find the initial basic feasible solution of the following transportation problem for minimizing using Vogel's Approximation method. The table below. **[10]**

	D1	D2	D3	D4	Supply
01	10	20	5	7	10
02	13	9	12	8	20
03	4	15	7	9	30
04	14	7	1	0	40
05	3	12	5	19	50
Demand	60	60	20	10	

OR

Q2) Solve the following L.P.P. using graphical method: **[10]**

Minimize $Z=80x+120y$

Subject to $x+y \leq 9$

$x \geq 2$

$y \geq 3$

$20x+50y \leq 300$

$x, y \geq 0$

P.T.O.

Q3) A self - service store employs one cashier at its counter. Nine customers arrive on as average 5 minutes while the cashier can serve 10 customers in 5 minutes. Assuming Poisson distribution for arrival rate and exponential distribution for service rate find: **[10]**

a) Find the traffic intensity.

b) Average number of customers in the system.

c) Average number of customers in queue or average queue length.

d) Average time a customer spends in the system.

e) Average time a customer waits before being served.

OR

Q4) a) In a cricket season for a one-day match a bowler bowled 50 balls. The frequency distribution of runs scored per ball is as given below: **[5]**

Runs/ball	0	1	2	3	4	5	6
Number of balls	15	10	10	4	8	1	2

Simulate the system for 2 over's and find average runs given in 2 over's by him.Use the following random numbers: 88,03,05,29,28,48,65,19,55,17,37,82.

b) Write a note on Markov Chain. **[5]**

Q5) Solve the following Game, Given the Pay-off matrix as: **[10]**

		Player B	
		B1	B2
Player A	A1	6	-3
	A2	-3	0

OR

Q6) A businessman has 3 alternative actions that he can take. Each of these follows 4 possible events. The conditional Payoffs for each action event combination are as under.

	Events			
Actions	A	B	C	D
I	4	0	-5	3
II	-2	6	9	1
III	7	3	2	4

Find optimal decision under **[10]**

a) Maximin Criterion.
b) Minimax Regret Criterion.
c) Laplace Criterion.

Q7) A project has been defined to contain the following list of activities along with their required time of completion.

Activity	A	B	C	D	E	F	G	H	I
Time in Days	1	4	3	7	6	2	7	9	4
Immediate Predecessor	-	A	A	A	B	C	E,F	D	G,H

a) Draw the Network Diagram.
b) Find early start time(EST) and early finish time (EFT).
c) Identify Critical path. **[10]**

OR

Q8) Write short notes on:

a) Role of Network techniques in project management. **[5]**
b) Floats and its types with example. **[5]**

Q9) The incidence of a certain disease is such that on an average 20% of workers suffer from it. If 10 workers are selected at random, find the probability that

a) Exactly 2 workers suffer from the disease. **[10]**
b) Not more than 2 workers suffer from the disease.
c) At least 9 workers suffer from the disease.

OR

Q10)a) A card is drawn at random from a well shuffled pack. Find the probability that **[5]**

i) It is not a spade.
ii) It is a face card.

b) A pair of dice is thrown. Find the probability of getting the sum **[5]**

i) More than nine.
ii) Multiple of 3.

✡ ✡ ✡