Total No. of Questions : 5] **SEAT No. :**

P1430 **[Total No. of Pages : 4**

[5365]-2004
M.B.A.
204: DECISION SCIENCE
(2016 Pattern) (Semester-II)

Time : 2¼Hours] ***[Max. Marks : 50***

Instructions to the candidates:

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

Q1) a) A computer center has four expert programmers. The center needs. four application programs to be developed. The head of computer center after carefully studying, estimates . The time required (in minutes) by the expert to develop the application programm. Find the assignment schedule so that time will be minimized. **[10]**

		A	B	C	D
		Programes			
Expert	1	120	100	80	90
	2	80	90	110	70
	3	110	140	120	100
	4	90	90	80	90

OR

a) Discuss the role of quantitative techniques in decision making. Give an example. **[5]**

b) Find the initial feasible solution using North-West corner method for the given matrix. **[5]**

		Store				
		A	B	C	D	Supply
Warehouse	I	10	20	5	7	10
	II	13	9	12	8	20
	III	4	15	7	9	30
	IV	14	7	1	0	40
	V	3	12	5	19	50
Demand		60	60	20	10	150 / 150

P.T.O.

Q2) Solve the following LPP graphically to maximize Z =3x+4y, subject to, $x + y \leq 6$, and $2x + y \leq 8$, where $x \geq 0$, $y \geq 0$. **[10]**

OR

The rainfall distribution of monsoon season is as follows.

Rainfall(in cm)	0	1	2	3	4	5
Frequency	50	25	15	5	3	2

Using the following random number-67,63,39,55,29,78,70,6,78, and 76, simulate the rainfall for next 10 days and find the average rainfall. **[10]**

Q3) A businessman has three alternative actions that he can take. Each of the action can be followed by any of the four posible events. The conditional payoff for each action-event combination are as under. **[10]**

Nature

action	N1	N2	N3	N4
S1	4	0	-5	3
S2	-2	6	9	1
S3	7	3	2	4

Find the optimal strategy using:

a) Maxmini criteria

b) Laplace criteria and

c) Hurwicz criteria ($\alpha = 0.6$)

OR

In a service department manned by one server, on an average one customer arrives every 10 minutes. It has been found that each customer requires 6 minutes to be served find out. **[10]**

a) Probability that the server is idle.

b) Average queue length.

c) Average time spent by each. Customer in the system.

d) Probability that there would be 2 customers in the queue.

Q4) Following information is gathered for a project. **[10]**

Activity	Preceding activity	Duration(weeks)
A	-	1
B	A	3
C	A	4
D	A	3
E	D	2
F	B,C,E	4
G	D	9
H	D	5
I	H	2
J	F,G,I	2

a) Draw network diagram.

b) Determine critical path and its duration.

OR

We have seven jobs, each of which has to go through two machines A&B in the order AB. The processing time for the jobs on the two machines (in hrs) are given as,

Job	1	2	3	4	5	6	7
Machine A	3	12	15	6	10	11	9
Machine B	8	10	10	6	12	1	3

Determine the sequence of these jobs to minimized total elapsed time.T. **[10]**

Q5) A card is drawn froma pack of cards. What is the chance of drawing a red queen given that the card drawn was a face card. **[10]**

OR

In a sample of 1000 scores, the mean of a certain test is 14 and the standard deviation is 2.5. Assuming the distribution to be normal, find. **[10]**

a) How many students have scored between 12 and 15 ?

b) How many scored above 18?

(Given Z at 0.8 = 0.2881

Z at 0.4 = 0.1554

Z at 1.6 = 0.4452)