[4870]-2004

M.B.A.

204 : DECISION SCIENCE

(2013 Pattern) (Semester - II)

Time : 2½ Hours]   *[Max. Marks : 50*

Instructions to the candidates:

   1)   *Attempt Five questions.*

   2)   *Each question has an internal option.*

   3)   *Each question carries 10 marks.*

   4)   *Figures to the right indicate marks for question.*

   5)   *Graph will not be provided, draw neat diagrams on answer sheet only, if required.*

   6)   *Non scientific calculator is permitted.*

Q1) A company wants to give advertisements in two local news papers, one Hindi and one English. Expected coverage through the Ads, is 1000 and 1500 people per ads. respectively. Each Ads in a Hindi costs Rs. 3000/- and for an English is Rs. 5000/-. Company decided not to place more than 10 ads, in the Hindi and at least 6 ads. in the English daily. The Total advertisement budget is Rs, 50,000/-. Formulate the problem as L.P. Model.   **[10]**

OR

Q2) Four different machines have four different jobs. The following matrix gives the costs in rupees of job on machine. The set up and take down time costs are assumed to be prohibitively high for changovers. How should the jobs be assigned to the various machines so that the total costs is minimised.   **[10]**

		Machines			
		M_1	M_2	M_3	M_4
	J_1	5	7	11	6
Jobs	J_2	8	5	9	6
	J_3	4	7	10	7
	J_4	10	4	8	3

Q3) A person wants to hire for repairing machines which breakdown at on average rate per hour, which following Poisson Distribution. A and B two repairmen interviewed. 'A' charges Rs. 100/- per hour and services breakdown machines at the rate of 6 per hour. B demands Rs. 125/- per hour and services at an average of 8 machines per hour. Downtime of a machine costs Rs. 25/- per hour, which repairman should be hired? **[10]**

OR

Q4) Three brands of product P, Q and R are having market share as 30%, 30% and 40% respectively. Customers shifts their brands. Brand switching matrix every quarter is given below: **[10]**

From	To		
	A	B	C
A	50%	30%	20%
B	20%	70%	10%
C	20%	20%	60%

Find market share at the end of quarter.

Q5) A production unit is not knowing the product acceptance probability and the data are given below: **[10]**

	Anticipated 1st year profit Rs. '000		
	Accpetance		
Product	Full	Partial	Minimal
Good	8	70	50
Fair	50	45	40
Poor	−25	−10	0

Determine the optimal decision under each of the following criteria :

a) Maximax

b) Maximin

c) Minimax Regret

OR

Q6) Player A and B are playing with the following Matrix. **[10]**

Player B

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

Solve the following game by using Dominance Rule.

Q7) Write short notes on (any two): **[5 + 5 = 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.

OR

Q8) Draw the network diagram for the following list of activities: **[10]**

Activity	Immediate Predecessor	Activity	Immediate Predecessor
A	-	L	K
B	A	M	K
C	B	N	K
D	C	O	D
E	D	P	O
F	E	Q	B
G	E	R	N
H	C	S	L, M
I	C, F	T	S
J	G, H, I	U	P, Q
K	J	V	U

Q9) a) A card is drawn from ordinary pack and a gambler bets that it is a spade or an ace. What are the odds against his winning this bet?

b) What is the chance that a leap year, selected at random will contain 53 sundays?

[5 + 5 = 10]

OR

Q10)Find the probability distribution of the number of sixes in three tosses of a dice. **[10]**

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