

Total No. of Questions : 10]

SEAT No. :

P3115

[Total No. of Pages : 3

[4670] - 204
M.B.A. (Semester - II)
204 : DECISION SCIENCE
(2013 Pattern)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:-

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

Q1) A firm produces three products. These products are processed on three different machines. The time required manufacturing one unit of each of the three products and daily capacity of the three machines are given in the table below : **[10]**

Machine	Time per unit (minutes)			Machine capacity (Minutes per day)
	Product 1	Product 2	Product 3	
M ₁	2	3	2	440
M ₂	4	—	3	470
M ₃	2	5	—	430

It is required to determine the daily number of units to be manufactured for each product. The profit per unit for product 1, 2 and 3 is Rs. 4/-, Rs. 3/- and Rs. 6/- respectively. It is assumed that all the amounts produced are consumed in the market. Formulate the LP model.

P.T.O.

OR

Q2) Find the initial basic feasible solution of the following transportation problem for minimising using Vogel's approximation method. The table below : [10]

Sources	Destination				Capacity
	I	II	III	IV	
A	20	6	25	15	50
B	17	13	16	17	50
C	5	21	19	23	100
	30	40	60	70	

Q3) A TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs in order in which they come in, and if the arrival of sets is approximately poisson with an average of 10 per 8 hour day. What is the repairman's expected idle time each day? How many jobs on an average waiting to be completed? [10]

OR

Q4) What is the concept of Monte Carlo simulation? Explain its scope and limitation. [5 + 5 = 10]

Q5) Solve the following game, given the pay-off matrix as : [10]

Player A	Player B	
	B ₁	B ₂
A ₁	1	7
A ₂	6	2

OR

Q6) The conditional pay offs in crores of rupees for the three models of a car for the various likely sales figures are as follows : **[10]**

Model	Sales (in units)		
	1 Lakh	2 Lakh	3 Lakh
X	30	10	10
Y	55	20	3
Z	16	35	65

Q7) a) Develop a network based on the following informations : **[5]**

Activity	immediate Predecessor	Activity	immediate Predecessor
A	–	E	C, D
B	–	F	D
C	A	G	E
D	B	H	F

b) Explain the significance and Applications of 'PERT' and 'CPM'. **[5]**

OR

Q8) What is the concept of network. Explain the critical path with example. Explain EST, LST, EFT and LFT also. **[10]**

Q9) The probability that a boy will pass an examination is $\frac{3}{5}$ and that for a girl it is $\frac{2}{5}$. What is the probability that at least one of them passes the examination. **[10]**

OR

Q10) Two students A and B working independently on a problem have $\frac{3}{4}$ and $\frac{2}{3}$ probability respectively to solve this. What is the probability that the problem will be solved? **[10]**

