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MBA/M-18

MANAGEMENT SCIENCE

Paper: MBA-CP-201

Time: Three Hours Maximum Marks: 80

Note: Attempt any eight questions from Section-A (each of 5 marks) and any three questions from Section-B (each of 10 marks)

Section-A

1. Highlight the role of models in management science
2. Discuss the meaning and scope of linear programming.
3. Solve the following game :

A's Strategies	B's Strategies		
	B1	b2	b3
A1	12	--8	--2
A2	6	7	3
A3	--10	--6	2

4. Differentiate between integer programming and goal programming.
5. Obtain initial basic feasible solution, by least cost method, for the following transportation problem.

(Cost in Rs. per unit)

From/to	W	X	Y	Z	Total
A	6	4	9	1	40
B	20	6	11	3	40
C	7	1	0	14	50
D	7	1	12	6	70
Total	90	30	50	30	

6. How many optimal solutions will the following assignment problem have? Solve

	P	Q	R	S	T
A	12	0	0	7	0
B	0	10	8	10	0
C	0	8	4	2	0
D	23	1	0	0	5
E	15	5	0	0	1

7. For an item, annual requirement is 12000 units, ordering costs are Rs. 150 per order and carrying costs are Rs. 10 per unit per year. Regarding the order quantity, there are two options:
   Option A- order quantity = 1000 units
   Option B- order quantity = EOQ
   Which option is better? Show.
8. Explain the procedure and benefits of sensitivity analysis.
9. What are the similarities and dissimilarities between PER and CPM?
10. Briefly discuss the costs associated with inventories.

Section –B

11. Discuss the evolution and scope of management science. Also highlight its role in business decision-making.
12. Explain the procedure, advantages, applications and limitations of simulation.
13. You are given the following information about the activities of a project:

Activity	1-2	1-3	1-4	2-5	3-5	3-6	3-7	4-6	5-7	6-8	7-8
Duration (weeks)	2	7	8	3	6	10	4	6	2	5	6

Draw the network, identify all the paths, determine the critical and EST,EFT,LST and LFT for each activity.

14. A book seller sells a book on tax laws for Rs. 90 while its purchase price is Rs.75. Since some of the tax laws change every year, the copies unsold at the end of a year become obsolete and can be disposed off for Rs. 25 each. The probability distribution of the number of copies demanded is as given below:

Demand (No. of Copies)	19	20	21	22
Probability	0.15	0.25	0.35	0.25

\ Construct the pay off table and determine the optimal act. Also find the EVPI.

15. What is degeneracy in transportation problem? Why does it arise? How can it be resolved? Explain and illustrate.