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OMMS/M-19

13027

MANAGEMENT SCIENCE

Paper : CP-201

Time : Three Hours]

[Maximum Marks : 70

Note : Attempt *eight* questions, out of *ten* question, (each of 5 marks) from Part-A and *three* questions, out of five questions, (each of 10 marks) from Part-B.

PART–A

1. Discuss the assumptions and scope of linear programming.

2. Discuss the features and classifications of physical models.

3. Solve the following LPP graphically :
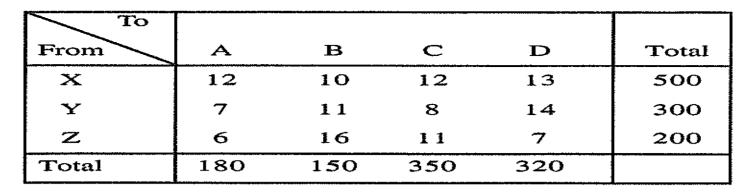
Maximize $Z = 3x_1 + 2x_2$

Subject to

$$2x_1 + x_2 \leq 12;$$
$$x_1 + x_2 \leq 10;$$
$$-x_1 + 3x_2 \geq 6$$

and $\quad x_1, x_2 \geq 0$

4. Find the initial feasible solution, by North-West corner method, for the following transportation problem for maximising the total profit (Rs.).

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To From	A	B	C	D	Total
X	12	10	12	13	500
Y	7	11	8	14	300
Z	6	16	11	7	200
Total	180	150	350	320	

5. Using suitable examples, explain and illustrate

   (i)   Two person zero-sum game and

   (ii)   Pure strategy.

6. Discuss in detail the costs associated with inventories.

7. What is goal programming ? Differentiate between preemptive and non-preemptive goal programming.

8. What is safety stock ? Why should an organisation maintain it ? Which factors affect the level of safety stock ?

9. Using examples, explain and illustrate dummy activity and critical path.

10. Discuss in detail various types of behaviour of the customers while waiting for the service and various orders by which customers are picked for service.

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PART—B

11. Discuss the evolution and characteristics of management science. Highlight its role in management decision-making process.

12. Discuss the process, advantages, limitations and applications of simulation.

13. Write notes on :

    (a) Sensitivity analysis.

    (b) Degeneracy in transportation problems.

14. Estimated sales revenue (in 000' Rs) of 5 salesmen in 5 districts is as given below :

Salesman	District				
	A	B	C	D	E
P	85	75	65	125	75
Q	90	78	66	132	78
R	75	66	57	114	69
S	80	72	60	120	72
T	76	64	56	112	68

Find an optimal solution for maximising the total revenue.

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15. Duration (in weeks) of the activities of a project are given below :

Activity	1-2	1-3	2-4	2-6	3-4	4-5	4-6	5-7	6-7	7-8
Duration	10	11	13	14	10	7	17	13	9	4

Draw the network, identify the critical path and determine EST and LFT for each activity.

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