Management Science
Paper: CP-201

Time: Three Hours]   [Maximum Marks: 70

Note :- Attempt **FIVE** questions in all. Question No.1 is compulsory. All
        questions carry equal marks.

1. (a) What is degeneracy in linear programming?

    (b) What is unbalanced problem **in** transportation problem?

    (c) Explain the concept of saddle point in Game.

    (d) Explain the conditions in transhipment problem which are in addition to the conditions of regular transportation problem.

    (e) Very briefly explain the concept of sensitivity analysis.

    (t) Graphically show the behaviour of inventory carrying cost and the cost of ordering in relation to size of the *order,* in inventory models. .

    (g) Explain the concept of EVPI (Expected Value of Perfect nformation) in Decision Theory. A company plans to manufacture two ites T and H. The raw materials available is sufficient only for packing 45 units. Packing material required for both types of items is same. It takes 3 Hrs to manufacture

2.   one item ofT and I hour for item H. Total hours available *are* 66.
    Fonnulate as L.P. and solve by Simplex method if the profit per item ofT isRs 3/- *for* item His Rs 2/-.

3.   *Write* short notes on :

    (a) Integer Programming

    (b) Goal Programming.

4.   Solve   the   following   transportation   problem   for maximization:

	X	y	Z	
A	7	10	5	90
B	12	9	4	50
C	7	3	11	80
D	9	5	7	60
	120	100	110	

5. A factory operates 8 hrs per day and has 240 working days in a year. The *m/c* break down average rate is 2 in 5 days, whereas the single maintenance engineer can repair the break down *m/c* on an average in 1.5 days. The idle time of *m/c* is Rs 8/- per hour. With the usual queue system assumption find the total cost of maintenance including cost of idle *m/c* time if maintenance engineer is given a salary of Rs 4 per hour.

6. (a) Explain the functions of inventory in manufacturing unitf-.

(b) Briefly describe the fixed order quantity system and the periodic review system in Inventory Control.

Following information is given in respect of a project:

7.

Activity	. hnmediately Preceding Activity	Time Estimates (days)		
		Most likely	Optimistic	Pessimistic
A	-	4	2	12
B	-	12	10	26
C	A	9	8	10
D	A	. 15	10	20
E	A	7.5	7	11
F	B,C	9	9	9
G	D	3.5	3	7
H	E,F,G	5	5	5
L	-			--

8. (a) Draw the project network

(b) Compute the expected completion time of the project.

Briefly describe the various decision rules under uncertainty.