

Reg. No. :

Name :

Fourth Semester M.Com. Degree Examination, May 2020

Elective – Finance/Marketing

Paper IV : CO 244S — MANAGEMENT OPTIMIZATION TECHNIQUES

(Common for Finance and Marketing)

(2018 Admission)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer **all** questions. **Each** question carries **2** marks.

1. What is saddle point?
2. What do you mean by degeneracy in transportation problem?
3. What is dummy activity?
4. What is Initial Basic Feasible Solution?
5. What is Monte carlo simulation?
6. What are slack variables?
7. Write a note on Vogel's Approximation Method.
8. What are assignment problems?

P.T.O.



9. What do you mean by EOQ?
10. What is Waiting Line theory?

(10 × 2 = 20 Marks)

SECTION – B

Answer any **five** questions. Each question carries **5** marks.

11. What are the basic assumptions in Linear Programming?
12. Explain the characteristics of management optimisation techniques.
13. Distinguish between Transportation problem and Assignment problem.
14. Develop a network diagram for the project specified below

Activity	Immediate Predecessor Activity
A	—
B	A
C	B
D	B
E	C
F	D
G	E,F

15. Solve the game:

	Player Y	
Player X	2	5
	4	1

16. The cost of a machine is Rs. 6100 and its scrap value is only Rs. 100. The maintenance costs are found to be:

Year:	1	2	3	4	5	6	7	8
Running cost:	100	250	400	600	900	1250	1600	2000

When should the Machine be replaced?



17. Find the initial basic feasible solution of the transportation problem by using VAM.

	Destination			Available
	3	2	1	
Origin	1	2	3	20
	2	3	1	14
	10	6	12	
Required	10	6	12	

18. At one-man book binding centre, customers arrive according to Poisson distribution with mean arrival rate of 4 per hour and the book binding time is exponentially distributed with an average of 12 minutes. Find out the following:
- The average number of customers in the book binding centre and the average number of customers waiting for book binding.
 - The percentage of time arrival can walk in straight without having to wait.
 - The percentage of customers who have to wait before getting into the book binder's table.

(5 × 5 = 25 Marks)

SECTION – C

Answer any **two** questions. **Each** question carries **15** marks.

19. A project schedule has the following characteristics:

Activity	Predecessor Activity	Duration (weeks)
A	–	15
B	A	17
C	A	21
D	B	19
E	B	22
F	C,D	18

- Construct network diagram.



(b) Compute T_E and T_L for each event.

(c) Find EST, LST, EFT and LFT.

(d) Find critical path and project duration.

20. What do you mean by Operations Research models? Explain the different models in Operations Research?

21. Solve using simplex method

$$\text{Max } z = 3x_1 + 2x_2 + x_3$$

Subject to :

$$4x_1 + x_2 + x_3 = 30$$

$$2x_1 + 3x_2 + x_3 \leq 60$$

$$x_1 + 2x_2 + 3x_3 \leq 40$$

22. Three jobs A , B, C are to be assigned to three machines X,Y,Z. The processing costs are as given in the matrix shown below. Find the allocation which will minimize the overall processing cost.

		Jobs		
		X	Y	Z
Machines	A	19	28	31
	B	11	17	16
	C	12	15	13

(2 × 15 = 30 Marks)

