LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. DEGREE EXAMINATION – **ECONOMICS**

FOURTH SEMESTER – **APRIL 2022**

16/17/18UEC4ES01 – OPERATIONS RESEARCH

Date: 23-06-2022   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

PART-A

Answer any FIVE questions in about 75 words each.   **(5×4=20 Marks)**

1. Describe the applications of operation research.
2. What is linear programming?
3. Write a brief note on Degenerate Transportation Problem.
4. How will you process n jobs through m machines?
5. Bring out the optimality criterion of assignment problem.
6. Explain the term PERT.
7. What is an Economic order Quantity?

PART-B

Answer any FOUR questions in about 250 words each.   **(4×10=40 Marks)**

8. Explain the terms key decision, objective, alternative and constrains in the context of linear programming models.
9. Explain simplex method of solving linear programming problem.
10. Solve the transport problem using north west corner rule method.

Source	Destination					
		A	B	C	D	Supply
	1	2	3	11	7	6
	2	1	0	6	1	1
	3	5	8	15	9	10
	Demand	7	5	3	2	

11. Determine a sequence for the five jobs that will minimize the elapsed time.

Processing time in hours					
Job	1	2	3	4	5
Machine A	5	1	9	3	10
Machine B	2	6	7	8	4

12. There are four jobs to be assigned one each to 4 machines and the associated cost matrix is as follows

Jobs		Machines			
		1	2	3	4
	1	5	7	11	6
	2	8	5	9	6
	3	4	7	10	7
	4	10	4	8	3

Find the optimum assignment schedule.
13. Write a detailed note on the applications of network analysis.
14. "Efficient inventory management is reflected in the liquidity and profitability of the firm." Explain.

PART-C

Answer any TWO questions in about 900 words each.   (2×20=40 Marks)
15. Discuss the significance and scope of operations research in modern management.
16. Find initial basic feasible solution by using Least cost and Vogel's approximation method.

Demand	D1	D2	D3	D4	D5	Supply
	2	11	10	3	7	4
	1	4	7	2	1	8
	3	9	4	8	12	9
	3	3	4	5	6	T=23

17. Find the critical path and the corresponding project completion time for the following project

Activity	Immediate predecessor	Duration (Weeks)
A	-	4
B	-	3
C	-	2
D	A, B, C	5
E	A, B.C	6
F	D	7
G	D, E	6
H	D, E	9
I	F	4
J	G	6
K	H	8

18. Explain the various techniques of inventory management.

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