

S.NO: 22N1-UBBJ

Course Code: BAJ

A.D.M.COLLEGE FOR WOMEN, NAGAPATTINAM

(AUTONOMOUS)

(BBA) Degree Examination

V Semester – November – 2022

CC X – OPERATIONS RESEARCH

Time: 3 hours

Maximum Marks: 75

Section –A

10X2=20

Answer **ALL** the Questions

1. Define Linear Programming.
2. Explain Linear Programming Simplex method.
3. Define North West Corner Rule.
4. Assignment helps in easy work allocation. Comment.
5. Write the Two person Zero Sum Game rules.
6. Bring out the matrix for 2X2 rectangular games.
7. Comment on PERT.
8. Explain the importance of CPM and routing of Work.
9. Is replacement of Equipment essential? Interpret.
10. Show mathematically how replacement of equipment fails suddenly.

Section –B

5X5=25

Answer **ALL** the Questions

11. a) Write the equation for linear programming problem with constraints.

(or)

b) Write the mathematical formulation (steps) for a problem.

12. a) Write the Algorithm for Vogel's Method.

(or)

b) Draft Assignment problem with examples.

13. a) Bring out the situation a two-person zero-sum game with 3x2 payoff matrix for Player A.

(or)

b) Elucidate the Maximini – Minimax Principal Games without Saddle Point with examples.

14. a) Write short note on Logical sequencing like Looping, dangling and Dependent Relationships.

(or)

b) Draw Chart for Event float, Activity Float.

15. a) A firm is considering replacement of a machine, which costs Rs.12,200 and the scrap value is Rs.200. The running cost are found from experience found to be as follows

Year	:	1	2	3
Running Cost	:	200	500	800

When the machine should be replaced?

(or)

b) Write simple steps to indentify the sudden failure of equipments and its reasons.

Section -C

3 X 10 = 30

Answer any **THREE** Questions

16. A company has three operational departments (weaving, processing and packing) with capacity to produce three different types of clothes namely suiting's, shirting's and woollens yielding a profit of Rs.2, Rs.4 and Rs.3 per meter respectively. One meter of suiting requires 3 minutes in weaving, 2 minutes in processing and 1 minute in packing. Similarly one meter of shirting requires 4 minutes in weaving, 1 minute in processing and 3 minutes in packing. One meter of woollen requires 3 minutes in each department. In a week, total run time of each department is 60, 40 and 80 hours for weaving, processing and packing respectively.

Formulate the LPP to find the product mix to maximize the profit.

17. Obtain an initial basic feasible solution to the following transportation problems using north west corner rule:

	D	E	F	G	Available
A	11	13	17	14	250
B	16	18	14	10	300
C	21	24	13	10	400
Requirement	200	225	275	250	

18. A departmental head has four subordinates, and four tasks to be performed. The subordinates differ in efficiency, and the tasks differ in their intrinsic difficulty. His estimate, of the time each man would take to perform each task, is given in the matrix below:

Men

Task	E	F	G	H
A	18	26	17	11
B	13	28	14	26
C	38	19	18	15
D	19	26	24	10

How should the tasks be allocated to subordinates so as to minimize the total man hours?

19. Determine which of the two person zero-sum games are strictly determinable and fair Give optimum strategies for each player in the case of strictly determinable games:

		Player B	
Player	5	0	
A	0	2	

20. Enumerate the importance of PERT in resource allocation with an imaginary situation
