

20U667

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Name: .....

Reg. No: .....

**SIXTH SEMESTER B.B.A. DEGREE EXAMINATION, APRIL 2023**

(CBCSS - UG)

(Regular/Supplementary/Improvement)

**CC19U BBA6 B13 - MANAGEMENT SCIENCE**

(BBA - Core Course)

(2019 Admission onwards)

Time: 2.5 Hours

Maximum: 80 Marks

Credit: 4

**Part A** (Short answer questions)

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

1. What do you mean by analytic methods?
2. List out any two disadvantages of LP.
3. Provide any two disadvantages of L.P.P.
4. List out the objectives of network analysis.
5. Provide the uses of network techniques for management.
6. Represent predecessor event graphically.
7. What is critical path?
8. State any two demerits of network techniques.
9. Discuss decision making under certainty.
10. Provide information about Criterion of pessimism.
11. What is Harwicz alpha criterion?
12. Explain the concept of Expected Opportunity Loss (EOL).
13. List out any two characteristics of a competitive game.
14. List out the basic assumptions in transportation technique.
15. Explain non-degenerate basic feasible solution under transportation problem.

**(Ceiling: 25 Marks)**

**Part B** (Paragraph questions)

Answer *all* questions. Each question carries 5 marks.

16. What is the nature of OR?
17. Quote the scope of OR.
18. A dealer wishes to purchase a number of fans and sewing machines. He has only Rs. 5,760 to invest and has space atmost for 20 items. A fan cost him Rs. 360 and a sewing machine Rs. 240. His expectation is that he can sell a fan at a profit of Rs. 22 and a sewing machine at a profit of Rs. 18. Assuming that he can sell all the items that he can buy, how should he invest his money in order to maximise his profit? Formulate LPP.

(1)

**Turn Over**

19. Draw a network for the following project

1. A is the starting activity event and K is the end activity.
2. J is the successor to F.
3. C and D are successors to B and B is the successor to A.
4. D is preceding activity event to G.
5. E and F occur after C.
6. E precedes F
7. G precedes H.
8. H proceeds I
9. F restrains the occurrence of H.
10. K succeeds event J and I.

20. What are the components of a decision problem?

21. A management is faced with the problem of choosing one of the products for manufacturing.

The probability matrix after market research for the two products was as follows.

State of nature

Act	Profit (in Rs.) if market is		
	Good	Fair	Poor
Product 'A'	0.75	0.15	0.10
Product 'B'	0.60	0.30	0.10

The profit that the management can make for different levels of market acceptability of the products are as follows.

State of nature

Act	Profit (in Rs.) if market is		
	Good	Fair	Bad
Product 'A'	35000	15000	5000
Product 'B'	50000	20000	Loss of 3000

Calculate expected value of the choice of alternatives and advise the management.

22. List out the steps in Lowest Cost Entry Method.

23. Solve the following Transportation problem to maximise profit.

Profit in Rs/Unit Distribution.

	A	B	C	D	Supply
1	15	51	42	33	23
Source 2	80	42	26	81	44
3	90	40	66	60	33
Demand	23	31	16	30	

(Ceiling: 35 Marks)

**Part C (Essay questions)**

Answer any *two* questions. Each question carries 10 marks.

24. A company sells two different products A and B. The company makes a profit of Rs. 400 and Rs. 300 per unit on products A and B respectively. The two products are produced in a common production process and are sold in two different markets. The production process has a capacity of 30,000 man hours. It takes 300 man hours to produce a unit of A and 100 man hours to produce a unit of B. The company estimates that the maximum number of units of A that can be sold is 80 and that of B is 120 units. Subject to these limitations, the product can be sold in any combinations. Find the optimum product mix. Formulate LPP and solve graphically.

25. Explain in detail Program Evaluation and Review Technique.

26. There is 40% chance that a patient admitted to the hospital, is suffering from cancer. A doctor has to decide whether a serious operation should be performed or not. If the patient is suffering from cancer, and the serious operation is performed, the chance that he will recover is 70%, otherwise it is 35%. On the other hand, if the patient is not suffering from cancer and the serious operation is performed, the chance that he will recover is 20%, otherwise it is 100%. Assume that recovering and death are the only possible results. Construct an appropriate decision tree. What decision should be the doctor take?

27. The following is the unit cost matrix of a transportation problem. Use Modi method to obtain the optimum basic feasible solution.

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Available
S <sub>1</sub>	50	30	220	1
S <sub>2</sub>	90	45	170	3
S <sub>3</sub>	250	200	50	4
Requirement	4	2	2	

(2 × 10 = 20 Marks)

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