

SIXTH SEMESTER UG DEGREE EXAMINATION, APRIL 2026**(Regular/Improvement/Supplementary)****BBA****GBBA6B13T: MANAGEMENT SCIENCE****Time: 2 ½ Hours****Maximum Marks: 80****SECTION A: Answer the following questions. Each carries *two* marks.****(Ceiling 25 marks)**

1. Comment on Float.
2. What is constraint?
3. List out the different types of decision making situations.
4. What is EMV method?
5. Comment on Hurwicz criterion.
6. State the North West corner method.
7. What do you mean by degeneracy in transportation problem?
8. What is pessimistic time estimate?
9. Define Operations Research.
10. State four advantages of LP method.
11. What is CPM?
12. Write a note on dummy activity.
13. What is feasible region?
14. Explain the MiniMax and Maxmin principles used in theory of games.
15. Name the elements of decision tree.

SECTION B: Answer the following questions. Each carries *five* marks.**(Ceiling 35 marks)**

16. What are the objectives of OR? Explain its scope.
17. Differentiate between PERT and CPM.
18. Explain any two OR models.
19. What are the three methods of transportation models?
20. A project schedule has the following characteristics:

Activity	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time(days)	4	1	1	1	6	5	4	8	1	2	5	7

Construct a network diagram. Find total float of each activity and find the critical path and the project duration.

(PTO)

21. A company produces 3 products A, B and C from 3 raw materials P, Q and R. One unit of product A requires 4 units of P and 6 units of Q. one unit of product B requires 4 units of Q and 10 units of R and one unit of product C requires 6 units of P and 4 units of Q and 8 units of R. The company has 16 units of material P, 20 units of Q and 30 units of R. Profit per unit of products A, B and C are Rs.6. Rs. 10 and Rs. 8 respectively. Formulate the problem mathematically to maximize the profit.
22. Explain the managerial application and limitations of Operations Research.
23. Explain simplex method in LPP.

SECTION C: Answer any two questions. Each carries *ten* marks.

24. Define game theory. Discuss the assumptions and strategies in theory of game.
25. What are the common techniques of Operations Research?
26. A grocery store is facing with a problem of how many cakes to stock in order to meet the days' demand. The grocer prefers not to sell day old product in competition with fresh products. Leftover cakes are therefore a complete loss. On the other hand, a customer who desires a cake and all of them are sold out, will buy from elsewhere and the sales will be lost. The grocer has therefore collected information on the past sales of selected 100 day period as shown in the table below:

Sales per day: 25 26 27 28

No. of days 10 30 50 10

Construct the payoff table and opportunity loss table.

What is the optimal number of cakes that should be bought each day. Also find EVPI. A cake costs Rs. 80 and sells at Rs. 100.

27. Solve the following transportation table by using NWCR, LCM method and Vogel's approximation method.

	D1	D2	D3	D4	Availability
O1	10	8	11	7	20
O2	9	12	14	6	40
O3	8	9	12	10	35
Requirement	16	18	31	30	95

(2 × 10 = 20 Marks)