

QP CODE: D4BBA2402	(Pages: 2)	Reg. No	:	
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FOURTH SEMESTER FYUGP EXAMINATION, APRIL 2026
Discipline Specific Core (DSC) Courses - Major
BBA4CJ205 : DECISION SCIENCE
(Credits: 4)

Time: 2 Hours	Maximum Marks: 70
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Section A

Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)

1.	List the steps involved in the graphical method of solving LP problems.	BL2	CO1, CO5
2.	A diet must contain at least 30 units of protein and 20 units of vitamins. Food X provides 3 protein & 1 vitamin per unit. Food Y provides 2 protein & 2 vitamins per unit. Cost of X = ₹5, cost of Y = ₹4. Find the decision variables and constraints.	BL2	CO2, CO3, CO6
3.	Define Operations Research and state any two of its characteristics.	BL2	CO1, CO4
4.	Explain optimality test.	BL4	CO1, CO2, CO3, CO4, CO5, CO6
5.	State any three limitations of the Travelling Salesman Problem.	BL1	CO1, CO2, CO3, CO4, CO5, CO6
6.	What are floats and slacks?	BL2	CO1, CO2, CO3, CO4, CO5, CO6
7.	List out the advantages of CPM.	BL1	CO1, CO2, CO3, CO4, CO5, CO6
8.	Give three examples of business decisions under uncertainty.	BL3	CO1, CO2, CO3, CO4, CO5, CO6
9.	Define a saddle point in a game.	BL2	CO1, CO2, CO3, CO4, CO5, CO6
10.	State any three assumptions of replacement models.	BL1	CO1, CO2, CO3, CO4, CO5, CO6

Section B

Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)

11.	Analyze the role of different OR models in solving managerial problems.	BL4	CO1, CO2, CO4
12.	Explain the steps for formulating a Linear Programming Model.	BL3	CO2, CO5, CO6
13.	Write the steps involved in solving an Assignment Problem using the Hungarian Method.	BL5	CO1, CO2, CO3, CO4, CO5, CO6
14.	Distinguish between balanced and unbalanced assignment problems.	BL4	CO1, CO2, CO3, CO4, CO5, CO6
15.	You are given the following information relating to activities of a project. Calculate expected time for all activities.	BL3	CO1, CO2, CO3, CO4, CO5, CO6

Activities	A	B	C	D	E	F
Optimistic time	2	6	1	1	6	5
Most likely time	4	8	5	5	8	7
Pessimistic time	6	10	15	9	10	8

(PTO)

16.	Explain the cost components considered in the gradual deterioration replacement model.	BL2	CO1, CO2, CO3, CO4, CO5, CO6
17.	A retailer has to stock goods under the following circumstances: Cost price during the season ₹12 Selling price during the season ₹18 Bargain price after the season ₹9 Cost of holding an item beyond the season ₹1 The past data on demand showed that the demand was never less than 7 or more than 11 units during past years. Show the pay off table.	BL3	CO1, CO2, CO3, CO4, CO5, CO6
18.	Give the different types of games.	BL1	CO1, CO2, CO3, CO4, CO5, CO6

Section C

Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)

19.

Solve the following transportation problem using VAM.

	D ₁	D ₂	D ₃	D ₄	Supply
F ₁	3	3	4	1	100
F ₂	4	2	4	2	125
F ₃	1	5	3	2	75
Demand	120	80	75	25	300

BL3

CO1, CO2, CO3, CO4, CO5, CO6

20.

From the following, calculate the earliest time,latest time,total float,free float and independence float.Identify critical path.What is the project duration?

Activity	Duration
1-2	8
1-3	4
2-3	4
3-4	5
3-5	6
4-5	4
5-6	5
5-7	7
4-8	8
6-7	3
6-8	5
7-8	3

BL3

CO1, CO2, CO3, CO4, CO5, CO6

CO : Course Outcome

BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)