April - May - 2026

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Total No. of Questions : 5] **SEAT No. :** [ ]

PF-12416 **[Total No. of Pages : 3**

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F.Y. M.B.A.

DS-506 MJ : GC-06 : Decision Science

(2025 Pattern) (Semester - I)

Time : 2½ Hours] ***[Max. Marks : 60***

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Each question carries 12 marks.*
3) *Each question has an internal option.*
4) *Use of simple calculator is-allowed.*
5) *Graph paper will not be provided, draw graph on answer paper.*

Q1) **Solve any six questions :** **[12]**

a) What is Network Analysis?

b) Explain Pure Strategy Game.

c) Explain the Concept of Least Cost Method

d) Explain VPI

e) What is EMV?

f) Explain the Concept of LPP

g) Explain Hungarian Method

h) Principle of Dominance.

i) Explain Mixed Strategy Game.

Q2) **Solve any two out of the three questions :** **[12]**

a) How the LPP is used in managerial decision making?

b) Explain the role of Quantitative techniques in organizational decision making.

c) Elaborate difference between PERT and CPM.

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Q3) **Solve Any One :** **[12]**

a) Solve the following problem for maximizing the production output. The data refers to the production of an article for the given operators and machines are below :-

Operators	Machines			
	A	B	C	D
1	10	5	7	8
2	11	4	9	10
3	8	4	9	7
4	7	5	6	4
5	8	9	7	5

OR

b) Solve the following Game:

[6 -3]

[-3 0]

Q4) **Solve any one :** **[12]**

a) Obtain the Initial solution for the following Transportation problem by using.

i) Least Cost Method

ii) Vogel's Approximation Method

	1	2	3	Supply
X	10	3	9	400
Y	12	10	5	300
Z	8	11	12	300
Requirement	200	300	500	

OR

b) A company has to choose one of the three types of biscuits: Creams, Coconut, and Glucose. Sales expected during next year are highly uncertain. The 7 marketing department estimate the profits considering manufacturing cost, promotional efforts and distribution setup.

Type of Biscuits	Profits on the estimated level of sales (in lakhs) for quantities		
	5,000	10,000	20,000
Cream (C)	15	25	45
Coconut (Co)	20	55	65
Glucose (G)	25	40	70

Find optimal Decision Under :

i) Maximin

ii) Minimax Regret Criteria

iii) Laplace

iv) Maximax

v) Hurwicz α 0.7

Q5) **Solve any one :** **[12]**

a) A Project has been defined to contain the following list of activities along with their required time of completion :-

Activity	A	B	C	D	E	F	G	H	I
Time (Days)	1	4	3	7	6	2	7	9	4
Immediate predecessor	-	A	A	A	B	C	E,F	D	G,H

i) Draw the Network diagram

ii) Determine critical path

iii) Show early start time and early finish time.

OR

b) Mr. Rao, the owner of a Readymade garments shop wishes to publish advertisements in two local daily newspapers, one Marathi and one English. The expected coverage through the advertisements is 1000 people and 1500 people per advertisement respectively. Each advertisement in a Marathi newspaper costs Rs. 3000 and for English daily it is Rs. 5000. Mr. Rao has decided not to place more than 10 advertisements in the Marathi newspaper and wants to place at least 6 advertisements in the English daily. The total advertisement budget is Rs. 50000 Formulate the problem as a L.P. Model.

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