TM252856R

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2025

2020, 2021, 2022, 2023 ADMISSIONS SUPPLEMENTARY

P.G Diploma In Management SEMESTER II - CORE COURSE

BA2C06TM20 - Management Decision Science

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. Define LPP.
2. Define slack variable.
3. Define the time estimates in PERT.
4. Explain unbalanced transportation problem.
5. Define an activity.
6. Define decision table.
7. Explain decision tree.
8. Define strategy.
9. Define mixed strategy.
10. Define autocorrelation.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Use the graphical method to solve the following LP problem

    max. Z = 15x1 + 10x2 subject to the constraints 4x1 + 6x2 <=360

    x1 <=180

    x2 <=200

    x1 >=0, x2 >=0

12. Solve graphically

    max. Z = 3x1 + 2x2 subject to the constraints 5x1 + x2 >=10

    x1+ x2 >=6

    x1 + 4x2 >=12

    x1 >=0, x2 >=0

13. Compare PERT and CPM.
14. There is forest areas F1, F2, F3, F4 and timber depots D1, D2, D3. The following table gives the produce of each forest area, the minimum timber required at each depot to attract buyers, and the cost of transportation per unit of timber from each forest area to each depot. Find the distribution of the entire forest produce for minimum cost of transportation.

	D1	D2	D3	
F1	3	4	6	100
F2	7	3	8	80
F3	6	4	5	90
F4	7	5	2	120
	110	110	60	

15. Find the solution using regret table.

Strategies	States of nature		
	N1	N2	N3
S1	7000	3000	1500
S2	5000	4500	0
S3	3000	3000	3000

16. Discuss salvage decision making under uncertainty.

17. Determine the range of values of p and q that will make the pay-off element a22, a saddle point for the game given below.

	B1	B2	B3
A1	2	4	5
A2	10	7	q
A3	4	p	8

18. Explain time series and its components.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Solve the LPP:

maximize Z=5X1-3X2+4X3 subject to X1-X2<=1

-3X1+2X2+2X3<=1

4X1-X3=1

X2>=0, X3>=0, X1,unrestricted in sign.

20. 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 estimates of the times that each man would take to perform each task is given in the matrix below:

		Tasks			
Subordinates		I	II	III	IV
	A	8	26	17	11
	B	13	28	4	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?

21. Explain types of decision-making environments.

22. (1) Explain two-person zero sum game.

(2) Solve the following game.

	B1	B2	B3	B4
A1	20	15	12	35
A2	20	14	8	10
A3	40	2	10	5
A4	-5	4	10	0