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Subjt Code: R16MBA106

MBA - I Semester Regular Examinations, D-2018

QUANTITATIVE ANALYSIS FOR BUSINESS DISIONS

Time: 3 hours Max Marks: 60

Question Paper Consists of Part-A and Part-B
Answering the question in Part-A is Compulsory
Four Questions should be answered from Part-B, each question carries equal marks of 12.
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PART-A (CASE STUDY) 1 X 12 = 12

1. Solve the travelling salesman problem given by the following data :
C_{12} :⁷ 20, C_{13} = 4, C_{14} 10, C_{23} = 5, C_{34} = 6,
C_{25} = 10, C_{35} = 6, C_{45} = 20, where $C_{ij} = C_{ij}$

and there is no route between cities i and j if the value for C_{ij} is not shown

PART-B 4X 12 = 48

2. Calculate Rank Correlation Coefficient between X and Y series :

X	68	64	75	50	64	80	75	40	55	64
Y	62	58	68	45	81	60	68	48	50	70

3. Solve the following LPP by graphical method
Maximize Z = $5x_1 + 7x_2$ st $x1 + x_2 <= 4$, $3x1 + 8x_2 <= 24$, $10x_i + 7x2 <= 35$ (x1,x2>=0)

4. What is game theory? What are its limitations? Show how a game theory problem can be formulated as a linear programming problem.

5. Solve the following transportation problem having cost structure as

Demand	A	B	C	D	ai
1	10	18	11	7	20
2	9	12	14	6	40
3	8	9	12	10	35
bj	16	18	31	30	95

6. An engineering company is offered a material handling equipment 'A'. 'A' is priced at Rs. 60,000 including cost of installation and the costs for operation and maintenance are estimated to be Rs.10,000 for each of the first 5 years, increasing every year by Rs.3000 per year in the sixth and subsequent years. The company expts a return of 10% on all its investments. What is the optimal replacement period?

7. For the projt represented by the network diagram, find the earliest and latest times, given the following data :

Task	**1-2**	**1-3**	**1-4**	**3-6**	**2-5**	**2-6**	**4-7**	**5-7**	**6-7**	**7-8**	**8-9**
Least time to	4	5	8	2	4	6	8	5	3	5	6
Greatest Time tp	8	10	12	7	10	15	16	9	7	11	13
Most likely time t_m	5	7	11	3	7	9	12	6	5	8	9

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