MBSC - 3.1D

Sl.No. :

Total No. of Pages : 3

III Semester M.B.A. Degree Examination, June/July - 2024
(SLM Scheme) (CBCS)
MANAGEMENT
Elective - D : Operations
Operations Research and Analytics

Time : 3 Hours **Max. Marks : 80**

SECTION - A

Answer any Five questions. Each question carries 5 marks : **[5 × 5 = 25]**

Q1) What are the essential characteristics of linear programing?

Q2) There are seven jobs, each of which has to be processed on machine A and then on Machine B. Processing time is given in hours. Find the optimal sequence in which the jobs are to be processed so as to minimize the total time elapsed.

Job	1	2	3	4	5	6	7
Machine A (Time in hours)	3	12	15	6	10	11	9
Machine B (Time in hours)	8	10	10	6	12	1	3

Q3) Elucidate the applications of replacement theory.

Q4) Write a note on Branch and Bound Technique.

Q5) Explain the applications of marketing analytics.

Q6) Explain the Statistical Quality Control Technique.

Q7) Write a note on Big Data Management.

SECTION - B

Answer any Four questions. Each question carries Ten marks [4 × 10 = 40]

Q8) Define Business Analytics. Explain the types and applications of Business Analytics.

Q9) Explain the types of Integer Programming Problems.

Q10) Briefly explain the Gomory's All-IPP Method and All IPP Algorithm.

Q11) Solve the following LPP by cutting plane method.

Maximize $Z = X_1 + X_2$

Subject to,

$$3X_1 + 2X_2 \leq 5$$

$$X_2 \leq 2$$

$X_1, X_2 \geq 0$ and are integers.

Q12) Briefly explain the advantages and disadvantages of Simulation Method.

Q13) A travelling salesman plans to visit six cities I, II, III, IV, V and VI. The travel time (in hours) between these cities. How should he schedule his touring plan in order to minimize the time travel time, if he visits each city once a week?

		To					
From		I	II	III	IV	V	VI
	I	-	13	2	15	15	15
	II	13	-	14	1	12	12
	III	2	14	-	16	14	14
	IV	15	1	16	-	10	10
	V	15	12	14	10	-	4
	VI	15	12	14	10	4	-

SECTION - C

Q14) **Case (Compulsory).** **[1 × 15 = 15]**

Solve the following LPP using Simple Method.

Minimize $Z = X_1 - 3X_2 + 2X_3$

Subject to, $3X_1 - X_2 + 2X_3 \leq 7$

$-2X_1 + 4X_2 \leq 12$

$-4X_1 + 3X_2 + 8X_3 \leq 10$

$X_1, X_2, X_3 \geq 0$

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