Printed Page:- 04 Subject Code:- BGPGDT207

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, NIET BUSINESS SCHOOL, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

PGDM (Global)

TRIMESTER: II - THEORY EXAMINATION (2024 -2024)

Subject: Quantitative Techniques for Business Decisions

Time: 2.5 Hours Max. Marks: 60

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A 15

1. Attempt all parts:-

1-a. Operations research analysts do not (CO1,K1) 1

(a) predict future operations

(b) build more than one model

(c) collect relevant data

(d) recommend decision and accept

1-b. The methods for solving LPP. (CO2,K2) 1

(a) Graphical method

(b) Simplex method

(c) Both a & b

(d) None of the above

1-c. Name the method for optimum solution of transportation problems.(CO3,K4) 1

(a) N W C R

(b) LCM

(c) VAM

(d) MODI Method

1-d. In game saddle point exists. (CO4,K4) 1

(a) Pure strategy

(b) Mixed strategy

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(c) Both of the above

(d) None the above

1-e. The main objective of sequencing problems in operations research is .(CO5,K3) 1

(a) To minimize the total completion time

(b) To maximize machine utilization

(c) To reduce the number of jobs

(d) To increase job complexity

2. Attempt all parts:-

2.a. .Write two characteristics of OR. (CO1,K1) 2

2.b. Define LPP.(CO2,K1) 2

2.c. Name the methods to solve the Initial Basic Feasible Solution of a transportation problem(CO3,K4) 2

2.d. Define Assignment problems.(CO4,K1) 2

2.e. Give Johnson's algorithm.(CO5,K1) 2

SECTION-B 15

3. Answer any three of the following:-

3-a. Discuss the advantages and limitations of using results from a mathematical model to make decisions about operations.(CO1,K6) 5

3-b. Solve the following LPP by using graphical method: (CO2,K3) 5

Max Z = 20x + 10y

Subject to: $x + 2y \leq 40$,

$3x + y \geq 30$,

$4x + 3y \geq 60$ and

$x, y \geq 0$

3.c. Find initial basic feasible solution by using Vogel's method of the following transportation problem.(CO3,K4) 5

	A	B	C	D	Supply
I	6	4	1	5	14
II	8	9	2	7	16
III	4	3	6	2	5
Req.					

3.d. Solve assignment problem. Assign the jobs.(CO4,K4) 5

	I	II	III	IV	V
A	30	25	33	35	36
B	23	29	38	23	26
C	30	27	22	22	22
D	25	31	29	27	32

E	27	29	30	24	32

3.e. Find sequencing and elapsed time of jobs. (CO5,K6) 5

job	1	2	3	4	5
Machine A	5	1	9	3	10
Machine B	2	6	7	8	4

SECTION-C 30

4. Answer any one of the following:-

4-a. Discuss the significance and scope of OR in management.(CO1,K6) 6

4-b. Discuss the characteristics of O.R..(CO1,K6) 6

5. Answer any one of the following:-

5-a. Write the dual of the given primal:(CO2,k2) 6

Min Z = 10x + 20y

Subject to $5x+ 22y \geq 18$

$x+ 3y \geq 8$

$4x - y \leq 6$

$x, y \geq 0$

5-b. Solve the LPP by Simplex method:(CO2,K6) 6

Max Z = 25x + 35Y

Subject to $2x +3 Y \leq 20$

$2x + 3Y \leq 25$

$x,Y \geq 0$

6. Answer any one of the following:-

6-a. Define the transportation problem and explain how it is used to determine the optimal way to transport goods from multiple sources to multiple destinations while minimizing cost.(CO3,K1,K6) 6

6-b. Discuss balanced and unbalanced transportation problems with examples.(CO3,K6) 6

7. Answer any one of the following:-

7-a. Solve the following pay off matrix . Also determine the optimal strategies and value of the gam 6

(CO4,K6)

$$\begin{bmatrix} 1 & 3 & 11 \\ 8 & 5 & 2 \end{bmatrix}$$

7-b. Define Game Theory and explain its key components, including players, strategies, payoffs, and equilibrium concepts.(CO4,K6) 6

8. Answer any one of the following:-

8-a. Find sequencing and total elapsed time of jobs.(CO5,K3) 6

Job	A	B	C	D	E	F
Machine A	1	4	6	3	5	2
Machine B	3	6	8	8	1	5

8-b. Give working rule for n jobs through three machines A,B and C in order ABC. (CO5,K4) 6

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