BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BBA **SEMESTER: IV OF VI**
BRANCH: BBA **SESSION: MO/2024**

SUBJECT: MT210 FUNDAMENTALS OF OPERATIONS RESEARCH

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Give reasons why most of the definitions of Operations Research are not satisfactory, explain with giving suitable definitions.	[5]	2	4
Q.1(b)	Explain uses and limitations of Operations Research with suitable examples.	[5]	2	3
Q.2(a)	Write steps to be followed while formulating linear programing problem. An animal feed company must produce 200kg of a mixture consisting of ingredients X and Y daily. X costs ₹ 3 per kg and Y costs ₹ 8 per kg. Not more than 80 kg of X and at least 60 kg of Y must be used. Formulate an LP model to Minimize the cost.	[5]	4	4
Q.2(b)	Solve the following LPP by graphical Method. Min Z = 20 x + 10 y Subject to $x + 2y \leq 40$ $3x + y \geq 30$ $4x + 3y \geq 60$ $X, y \geq 0$	[5]	4	4
Q.3(a)	What Various steps to be discussed by Simplex method for computation of an optimum solution?	[5]	3	3
	Use simplex method to solve the LPP.	[5]	4	5
2Q.3(b)	Z max = 3x + 2y Subject to $X + y \leq 4$ $X - y \leq 2$ $X, y \geq 0$			
Q.4(a)	How transportation problem differs from Assignment problem?	[5]	4	4
Q.4(b)	A company has 4 machines to do 3 jobs. Each job can be assigned to only one machines. The cost of each job on each machine is given below. Determine the job assignments that will minimize.	[5]	3	4

	Machine			
Jobs	W	X	Y	Z
A	18	24	28	32
B	8	13	17	18
C	10	15	19	22

Q.5(a)	A situation is termed as game when it possesses how many properties?	[5]	3	4
Q.5(b)	Explain: 1. Pure strategy 2. Zero-sum game 3. Maxi- min principle 4. Fair game.	[5]	3	3

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