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

CLASS: MBA **SEMESTER : III**
BRANCH: MBA **SESSION : MO/2024**

SUBJECT: MT532 DECISION SCIENCE FOR BUSINESS MODELLING

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. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Define the different measures of central tendencies together with their merit and demerits. Which is the best measure of central tendency and why? And discuss its importance's in Decision making.	[5]	2	1,2
Q.1(b)	What are the different measures of Variability of observations? Calculate Quartile deviation for the following data:	[5]	3	1,6

Class Interval	0-10	10-20	20-30	30-40	40-50
frequency	6	25	36	20	13

Q.2(a)	Define the Coefficient of Correlation. What is it intended to measure? Find Correlation coefficient for the following:	[5]	3	1,6

x	5	7	4	3	2
y	6	7	8	3	9

Q.2(b)	What are regression coefficients? State some of the important properties of regression coefficients. Calculate the regression equations of x on y and y on x from the following data:	[5]	3	3,4

x	1	2	3	4	5
y	2	5	3	8	7

Q.3(a)	(i)The owner of a bakery may be considering how much one-kg cakes he can sell in a day. He has kept a record of the sale of this type of cake made over the last 100 days as given below:	[5]	1	4

No of cakes sold(x)	0	1	2	3	4	5	Total
NO of Days(f)	10	20	20	35	10	5	100

Based on these historical data develop probability distribution of demand for the cake in question.
(ii) Distinguish between a point and interval estimation. Explain why it is important to calculate an interval estimate in addition to a point estimate of a population parameter.

Q.3(b)	Electric switches produced by two manufacturing processes are known to produce respectively 0.08 and0.05 defective switches. A random sample of 50 switches from the first process and a random sample of 80 switches from the second are taken. Find the probability that the first sample will contain defectives at least one percent more than the second.	[5]	3	2
Q.4(a)	Discuss about Multivariate Analysis and Multiple Regression Analysis	[5]	3	2
Q.4(b)	Find the Principal Component of the given data: The two dimensional patterns are	[5]	4	6

x	2	3	4	5	6	7
y	1	5	3	6	7	8

Q.5(a)	What is SEM and make two SE Model for Decision making problems.	[5]	3	2
Q.5(b)	Distinguish between MRA and SEM.	[5]	3	2

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