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

CLASS: MBA **SEMESTER : III**
BRANCH: MBA **SESSION : MO/2023**

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.

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Q.1(a)	Give brief note of the measures of central tendency 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 1
Q.1(b)	Write the merit and demerit of Range and Quartile Deviation. Calculate inter quartile range for the following data:	[5]	3 1,6 1

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 2

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 2

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

Q.3(a)	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.	[5]	1 4 3
Q.3(b)	What do you understand by a hypothesis and Type I, Type II Errors? Distinguish between the Null and Alternate Hypothesis and as well as Type I and Type II Errors.	[5]	3 2 3
Q.4(a)	Discuss about Factor Analysis and Principal Component Analysis.	[5]	3 2 4
Q.4(b)	The manager of the National Company sampled 10 salespersons to relate the sales, test score and its experiences .The give data are given below and fit an equation of regression of sales on test score and sales experience.	[5]	4 6 4

Salesman	1	2	3	4	5	6	7	8	9	10
Test score	18	20	21	22	27	27	28	29	29	29
Sale	23	27	29	28	28	31	35	30	36	33
Experience In years	6	8	7	7	4	7	10	6	9	8

Q.5(a)	Discuss about SEM and its Software as well as its Techniques.	[5]	3 2 5
Q.5(b)	Write application of SEM to Decision making problems.	[5]	5 3 5

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