VIT
Vellore Institute of Technology

REG.NO.:

SCHOOL OF ADVANCED SCIENCES
CONTINUOUS ASSESSMENT TEST - 1
WINTER SEMESTER 2024-2025

SLOT: B1+TB1

Programme Name & Branch	**: B. Tech**
Course Code and Course Name	**: Data Science and Statistical Modelling (MAT 2005)**
Faculty Name(s)	**:Dr. Venkata Satyanarayana P, Dr. Purusotham. S**
Class Number(s)	**: VL2024250504908: 909**
Date of Examination	**: 28-01-2025**
Exam Duration	**: 90 minutes** **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- Statistical tables are permitted.

Q. No	Question	M	CO	BL
1.	Calculate the Karl Pearson correlation coefficient between the variables x and y for the following data. Also comment your answer. x: 78, 89, 96, 69, 59, 79, 68, 62 y: 125, 137, 156, 112, 107, 136, 123, 104	10	2	1
2.	Calculate the two regression equations of X on Y and Y on X from the data given below. Price in (Rs.) (X): 10, 12, 13, 12, 16, 15 Amount Demanded (Y): 40, 38, 43, 45, 37, 43 Estimate the likely demand when the price is Rs.20.	10	2	3
3.	If $r_{12} = 0.8$, $r_{13} = -0.4$, $r_{23} = -0.56$, find all multiple correlation coefficients. Is the data consistent and justify your answer.	10	2	2
4.	A random sample of 10 boys had the following I. Q's 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Do these data support the assumption of a population mean I.Q of 100? Find a reasonable range in which most of the mean I.Q. values of samples of 10 boys lie.	10	5	1
5.	The time taken by workers in performing a job by method I and II is given below: Method I: 20, 16, 26, 27, 23, 22, - Method II: 27, 33, 42, 35, 32, 34, 38 Do the data show that the variances of time distribution from population from which these samples are drawn do not differ significantly?	10	5	2

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