VIT
Vellore Institute of Technology

REG.NO.:

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

SLOT: D1+TD1

Programme Name & Branch	**: B.Tech**
Course Code and Course Name	**: Probability and Statistics- BMAT202L**
Faculty Name(s)	**: Common Slot Question Paper**
Class Number(s)	**: Common Slot Question Paper**
Date of Examination	**: 30-01-2025**
Exam Duration	**: 90 minutes**

Maximum Marks: 50

General instruction(s):

- Answer All Questions (5*10=50 Marks)

Q. No	Question	M	CO	BL
1.	Calculate the mean, median and mode for the following distribution. Marks: 130-134 | 135-139 | 140-144 | 145-149 | 150-154 | 155-159 | 159-164 No. of Students: 5 | 15 | 28 | 24 | 17 | 10 | 1	10	1	1
2.	Find the coefficient of mean deviation from mean, quartile deviation and coefficient of variation for the following data. X: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 f: 4 | 36 | 100 | 234 | 280 | 204 | 112 | 28 | 4	10	1	1
3.	If the probability density function of a continuous random variable X is given by $f(x) = \begin{cases} ax, & 0 \le x \le 1, \\ a, & 1 \le x \le 2, \\ 3a - ax, & 2 \le x \le 3, \\ 0, & elsewhere. \end{cases}$ (i) Find the value of 'a'. (ii) Find the cumulative distribution function of X. (iii) Find $P(X \ge 1.5)$.	10	2	3
4.	For the bivariate probability distribution of (X, Y) given below, find $P(X \le 1)$, $P(Y \le 3)$, $P(X \le 1, Y \le 3)$, $P(X \le 1/Y \le 3)$, $P(Y \le 3/X \le 1)$ and $P(X + Y \le 4)$. X \ Y: 1 | 2 | 3 | 4 | 5 | 6 0: 0 | 0 | 1/32 | 2/32 | 2/32 | 3/32 1: 1/16 | 1/16 | 1/8 | 1/8 | 1/8 | 1/8 2: 1/32 | 1/32 | 1/64 | 1/64 | 0 | 2/64	10	2	3
5.	Compute the coefficient of correlation between X and Y using the following data: X: 65 | 67 | 66 | 71 | 67 | 70 | 68 | 69 Y: 67 | 68 | 68 | 70 | 64 | 67 | 72 | 70	10	3	2

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