VIT
Vellore Institute of Technology

Winter Semester – 2019~2020
Continuous Assessment Test – I
Programme Name & Branch : B.Tech./M.Tech.

Course Code & Name : MAT2001 – Statistics for Engineers   Slot : D1+TD1
Exam Duration : 90 Minutes   Maximum Marks : 50

Answer ALL the Questions
Each question carries equal marks (5 × 10 = 50 Marks)

1. Find the Mean, Median and Mode :   [10 M]

Class Interval :	2000 – 3000	3000 – 4000	4000 – 5000	5000 – 6000	6000 – 7
Frequency :	3	5	20	10	5

2. The runs taken by two cricket players A and B in 10 innings were as follows:

A :	30	44	66	62	60	34	80	46	20	38
B :	34	46	70	38	55	48	60	34	45	30

of these two players, who is the better scorer and who is more consistent?   [10 M]

3. The diameter of an electric cable, say X, is assumed to be a continuous random variable with probability density function given by $f(x) = \begin{cases} kx(1-x), & 0 < x < 1 \\ 0, & elsewhere \end{cases}$ then

(i). Find the value of k

(ii). Determine a number b such that $P(X < b) = P(X > b)$

(iii). Find the mean and variance of the random variable X [10 M]

4. Two dimensional random variables X and Y have the joint probability function
$P(X = x, Y = y) = \dfrac{x^2 + y}{32}$, for $x = 0, 1, 2, 3$ and $y = 0, 1$.

(i). Find all the marginal distributions of X and Y

(ii). Find the probability distribution of Z, mean and variance of Z where $Z = X + Y$

          [10 M]

5. If X represents the outcome, when a fair die is tossed, find the moment generating function of X and hence find $E(X)$ and $Var(X)$.   [10 M]

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