VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Winter Semester 2018-19

Continuous Assessment Test – I

Programme Name & Branch: B.Tech (All Branches)

Course Name & Code: Statistics for Engineers (MAT2001)
Exam Duration: 90 Minutes

Slot: G2+TG2
Maximum Marks: 50

Answer ALL the Questions

S. No. — Question

1. Compute the Quartile Deviation for the following data: **[10M]**

Size	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40
Frequency	6	10	18	30	15	12	10	6	2

2. The following are scores of two batsmen A and B in a series of innings:

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

Calculate the mean, S.D and coefficient of variation for each batsman, determine who is more consistent player. **[10M]**

3. *The joint Probability density function of random variable X and Y is given by*

$$f(x,y) = kxye^{-(x^2+y^2)} \qquad x>0,\ y>0$$

i) Find the value of k. ii) Are x and y independent? (iii) Find the conditional distributions **[12M]**

4. Suppose that the length of time a transistor will work in a given circuit is a random variable X with probability density function

$$f(x) = \begin{cases} 500e^{-500x} & x>0 \\ 0 & \text{otherwise} \end{cases}$$

Find the moment generating function and hence find mean. **[8M]**

5. Find the Karl Pearson's coefficient of correlation between x and y from the following table.

x	78	89	97	69	59	79	68	57
y	125	137	156	112	107	138	123	108

[10M]

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