VIT
Vellore Institute of Technology

Fall Semester, 2019-2020
Continuous Assessment Test-I
Programme Name & Branch: B. Tech.
Slot: D1+ TD1
Maximum Marks: 50

Course Name & Code: Statistics for Engineers, MAT 2001

Exam Duration: 90 minutes

Answer All the Questions ($5 \times 10 = 50$)

1. Given the following frequency distribution of earners by daily in a company.

Earns	57.5-62.5	62.5-67.5	67.5-72.5	72.5-77.5	77.5-82.5	82.5-87.5	87.5-92.5	92.5-97.5
No. of worker	4	5	31	39	114	30	25	2

Calculate from the data the (i) mean, (ii) median and (iii) mode. [10 M]

2. For the following open-ended data, calculate the Quartile Deviation and its coefficient. Also calculate the standard deviation for the data. [10 M]

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	10	20	30	50	40	30

3. A random variable X has the following probability distribution [10 M]

X:	-2	-1	0	1	2	3
P(x):	0.1	K	0.2	2K	0.3	3K

(i) Find the value of K, (ii) Evaluate $P(X<2)$ and $P(-2<X<2)$, (iii) Find the cumulative distribution function of X and (iv) evaluate the mean of X.

4. The joint probability density function of two random variables (X, Y) is given by

$$f_{XY}(x,y) = \begin{cases} cx(x-y), & 0 < x < 2;\ -x < y < x \\ 0 & \text{elsewhe} \end{cases}$$

(a) Determine the value of c. (b) Find the marginal distribution for X and marginal distribution for Y. (c) Evaluate $f_{Y/X}(y/x)$. [10 M]

5. Find the correlation coefficient for the following two sets represents ages of men and women. [10 M]

Ages of Man	23	27	28	28	29	30	31	33	35	36
Ages of Women	18	20	22	27	21	29	27	29	28	29

****