VIT

Vellore Institute of Technology

WS 2018-19

Continuous Assessment Test – I

Programme Name & Branch: B. Tech.

Course Name & Code: Statistics for Engineers (MAT2001)

Exam Duration: 90 minutes **Slot: G1+TG1** **Maximum Marks: 50**

Answer All the Questions (5 × 10 = 50)

S. No.	Question
1.	Calculate the mean and standard deviation of the following frequency distribution and hence obtain the value of coefficient of variation

Class	500-700	700-900	900-1100	1100-1300	1300-1500
Frequency	5	11	26	10	8

2. Find the quartile deviation for the following frequency distribution:

Age	20-40	40-60	60-80	80-100	100-120	120-140	140-160
No. of Employees	4	6	10	16	12	7	3

3. The joint probability mass function of (X,Y) is $p(x,y) = k(2x+3y)$; $x = 0,1,2$; $y = 1,2,3$. (i) Find all marginal distributions (ii) Find $P(X = x / Y = 2)$ (iii) Find $P[X + Y > 3]$.

4. The joint probability density function of two dimensional continuous random variables (X,Y) is given by $f(x,y) = \begin{cases} \frac{x(1+3y^2)}{4}; & 0 < x < 2; 0 < y < 1 \\ 0; & \text{otherwise} \end{cases}$ Find the covariance of X and Y.

5. The time X in years that an employee spent on a company and the employee's hourly pay, Y for 5 employees are listed in the table below:

Time in Years (X)	5	3	4	10	15
Employee's hourly pay (Y)	25	20	21	35	38

Find the correlation coefficient between X and Y.