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

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

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

Slot : B1+TB1
Maximum Marks : 50

Answer ALL the Questions

Each question carries equal marks ($5 \times 10 = 50$ Marks)

S. No.	Questions	Marks
1.	Given below is the distribution of 140 candidates obtaining marks X and cumulative frequency (c.f.) of X. X: 10 20 30 40 50 60 70 80 90 100 c.f. : 140 133 118 100 75 45 25 9 2 0 Calculate the mean, median and mode for the distribution.	[10]
2.	Calculate the mean, variance and standard deviation for the following frequency distribution, and hence obtain the value of co-efficient of variation. X: 20–25 25–30 30–35 35–40 40–45 45–50 50–55 55–60 60–65 f : 35 165 215 185 145 105 75 65 45	[10]
3.	If the random variable X takes the values 1, 2, 3 and 4 such that $2P(X = 1) = 3P(X = 2) = P(X = 3) = 5P(X = 4)$, find the probability distribution function and cumulative distribution function of X.	[10]
4.	If the joint density for the random variables (X, Y), where X is the unit temperature change and Y is the proportion of spectrum shift that a certain atomic particle produces, is given by $f(x,y) = \begin{cases} cxy^2, & 0 < x < y < 1; \\ 0, & otherwise, \end{cases}$ then find (i). the value of c, (ii). $f_{Y/X}(x/y)$, (iii). $f_X(x)$, (iv). $f_Y(y)$.	[10]
5.	Ten competitions in a beauty contest were ranked by three judges A, B, C as follows: A: 6 5 3 10 2 4 9 7 8 1 B: 5 8 4 7 10 2 1 6 9 3 C: 4 9 8 1 2 3 10 5 7 6 Discuss which pair of judges have the nearest approach to common taste of beauty.	[10]

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