(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 Find real root of the equation $3x = e^x$ by Bisection method.   L1   12M

OR

2 Find the root of the equation $x e^x = 2$ using Regula-Falsi method.   L1   12M

UNIT-II

3 Evaluate by Taylor's series method, find an approximate value of y at x=0.1 and 0.2   L5   12M
for the D.E $y^{11} + xy = 0$; $y(0) = 1$, $y^1(0) = 1/2$.

OR

4 Using R-K method of 4th order, solve $\frac{dy}{dx} = x^2 - y$, y(0)=1. Find y(0.1) and y(0.2) .   L3   12M

UNIT-III

5 Compute Karl Pearson and Bowley's coefficient of Skewness to the following data: L6   12M

X	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
F	2	6	11	20	40	75	45	25	18	8

OR

6 Two dice are thrown. Let A be the event that the sum of the point on the faces is 9.   L1   12M
Let B be the event that at least one number is 6. Find (i) $P(A \cap B)$
(ii) $P(A \cup B)$ (iii) $P(A^c \cup B^c)$ (iv) $P(A^c \cap B^c)$ (v) $P(A \cap B^c)$.

UNIT-IV

7 **a** Find the mean and variance of the uniform probability distribution given by   L1   6M
$f(x) = \frac{1}{n}$ for $x = 1, 2, ..., n$.

b If a random variable has a Probability density f(x) as $f(x) = \begin{cases} 2e^{-2x}, & \text{for } x > 0 \\ 0, & \text{for } x \leq 0 \end{cases}$ Find   L6   6M
the Probabilities that it will take on a value (i) Between 1 & 3   (ii) Greater
than 0.5.

OR

8 A random variable x has the following probability distribution function   L1   12M

x	1	2	3	4	5	6	7	8
P(x)	k	2k	3k	4k	5k	6k	7k	8k

Find i) k ii) $P(X \leq 2)$ iii) $P(2 \leq x \leq 5)$.

UNIT-V

9 Out of 800 families with 5 children each, how many would you expect to have   L5   12M
   (i) 3 boys (ii) 5 girls (iii) either 2 or 3boys iv) At least one boy.

OR

10 Find two regression equations from the following data: L1   12M

X	10	25	34	42	37	35	36	45
Y	56	64	63	58	73	75	82	77

*** END ***