FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES
4th SEMESTER B. TECH PROGRAMME
PROBABILITY, STATISTICS AND NUMERICAL METHODS (203191251)
ACADEMIC YEAR 2021-2022

Assignment 2

1.	There are two defective pencils in a pack of dozen pencils. If three pencils are taken at random, find the probabilities that (i) at the most one pencil is defective (ii) two pencils are defective.
2.	The probability that a patient will get reaction of a particular injection is 0.001. 2000 patients are given that injection. Find the probabilities that (i) 3 patients will get reaction (ii) more than 2 patients will get reaction.
3.	X is distributed as a binomial variate with mean 3 and variance 2, find $P(3 \leq x \leq 6)$.
4.	The expenditures on breakfast of customers of a restaurant follow normal distribution with mean Rs.200 and standard deviation Rs.50. On a particular day 40 customers spent more than Rs.275, find the expected number of customers visited the restaurant on that day.
5.	A coin is tossed 900 times. Find the probability that the number of heads is between 435 and 465.
6.	The daily profit of a businessmen is Rs.120 and the s.d. of the profit is Rs.15. Find the number of days out of 365 days on which his profit will be less than Rs.100.
7	Find the root of the equation $x^3 - 4x - 9 = 0$, using the bisection method correct to three decimal places.
8	Find the root of the equation $x - cosx = 0$, using the bisection method correct to three decimal places.
9	Find the root of the equation $xe^x = cosx$, using the Regula- Falsi method correct to three decimal places.
10	Find the root of the equation $x^3 + x - 1 = 0$, using the False position method correct to three decimal places.
11	Find the positive root of the equation $x^4 - x = 10$, using the Newton Raphson method correct to three decimal places.
12	Solve the following system of linear equations by Gauss Jacobi method, correct up to 3 decimal places $27x + 6y - z = 85$ $x + y + 54z = 110$ $6x + 15y + 2z = 72$

13 Solve the following system of linear equations by Gauss seidel method , correct up to decimal places.

$$10x + 2y + z = 9$$
$$2x + 20y - 2z = -44$$
$$-2x + 3y + 10z = 22$$

14 The area of a circle of diameter d, is given for the following values

d	80	85	90	95	100
A	5026	5674	6362	7088	7854

Calculate the area of a circle of diameter 98.

15 Find the number of men getting wages between Rs.10 and 15 from the following data

Wages in Rs.	0-10	10-20	20-30	30-40
Frequency	9	30	35	42