Introduction to Statistical Methods

(S1-25_AIMLCZC418) – Assignment 1

AIML Section- 5

Each question carries 2.5 Marks (2.5 x 4 = 10 Marks)
Duration:20th Nov, 2025 – 2nd December 2025
1) Submissions are individual
2) Solve these on paper, scan, and upload
3) Plagiarism results in zero marks
4) Write your name, BITS ID and Section on each page
5) Only handwritten solutions with formula, full steps with proper justification are required.

Q1. The daily step count (in thousands) for 14 employees over a week are:
8.2, 10.0, 9.5, 12.1, 11.3, 8.8, 9.0, 7.7, 12.8, 10.6, 9.4, 8.1, 13.5, 11.8.
(i) Calculate the mean, median, sample variance, SD, range, and interquartile range.
(ii) Identify whether the data is left/right skewed.
(iii) List any data points considered as outliers.

Q2. An engineering college has 120 students: 45 in Computer Science (20 scholarship holders), 35 in Electrical (15 scholarship holders), and 40 in Mechanical (10 scholarship holders). Five students hold double major, with 2 receiving scholarships, counted in both departments. If a student is selected at random, find the probability that the student is either from Electrical or is a scholarship holder.

Q3. You have the following dataset:

Patient	Fatigue	Loss of Smell	Sore Eyes	Has Flu
P1	Yes	Yes	No	Yes
P2	No	No	Yes	No
P3	Yes	No	No	Yes
P4	No	Yes	Yes	No

A new patient exhibits: Fatigue = No, Loss of Smell = Yes, Sore Eyes = No

Apply Naive Bayes Classifier to predict if the patient has flu.

Q4. An investor made 40% of investment in stocks, 20% in mutual funds and the rest in personal business. There are 20%, 10% and 15% of chances of obtaining profit in stocks, mutual funds and personal business respectively.

a. What is the probability that the investor gets profit?
b. Given that the investor got some profit, what are the probabilities that he got from stocks, mutual funds and personal business?

----ALL THE BEST----