Introduction to Statistical Methods

(S2-22_AIMLCZC418) – Assignment 1

AIML Section 3

Each question carries 2.5 Marks (2.5 x 4 = 10 Marks)
Duration: 17th June 2023 – 2nd July 2023
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

1. In a school initially there are 100 students with the mean of age 15 and standard deviation 3. Suppose 150 new students are admitted in the school then the mean of the age of 250 students is 15.6 with standard deviation 3.66. Find the mean and the standard deviation of age of newly admitted students.

2. Three coins are tossed simultaneously 250 times and the outcomes are recorded as given below.

Outcomes	3 heads	2 heads	1 head	No head	**Total**
Frequencies	38	100	64	48	**250**

If the three coins are again tossed simultaneously at random, find the probability of getting (i) 1 head (ii) 2 heads and 1 tail (iii) All tails

3. A lot contains 32 bulbs, of which 25% are defective. A bulb is drawn at random from the lot. It is found to be non-defective and is not replaced. Now one bulb is drawn at random from the rest. What is the probability that this bulb is not defective?

4. A food production company is polling for new cookies to be launched in the market. The market research team suggests that people of different age groups have different preferences with respect to the product. Suppose the target population is divided into three disjoint age groups A,B, and C.

   It is observed that 76% of Group A favors the product, 47 % of Group B favors the product and 54% of Group C favors the product. A random sample of 105 people with 35 from group A, 28 from Group B and 42 from Group C, was chosen and polled. A random vote from the poll suggests that the product is preferred. What is the probability that this vote belongs to a person from group B?

----ALL THE BEST----