

Introduction to Statistical Methods

(S2-22_AIMLCZC418) – Assignment 2

AIML Section-2

Each question carries 2.5 Marks (4 x 2.5 = 10 Marks)

Duration: 26 August, 2023 -10 September, 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. The masses of cucumbers grown at a smallholding are normally distributed with mean 310 g and standard deviation 22 g. Producers of a new plant food claim that its use increases the masses of cucumbers. To test this claim, some cucumber plants are grown using the new plant food and a random sample of 40 cucumbers from these plants are selected and weighed. The mean mass of these cucumbers is 316g. Assuming the standard deviation of the masses of the sample is the same as the standard deviation of the population, test the claim at 5% level of significance.

2. To verify whether a course in accounting improved performance a similar test was given to 12 participated both before and after the course. The marks are :

Before	44	40	61	52	32	44	70	41	67	72	53	72
After	53	38	69	57	46	39	73	48	73	74	60	78

Was the course useful?

3. The following table gives the number of good and bad parts produced by each of three shifts in a factory

SHIFTS	GOOD	BAD
DAY	900	130
EVENING	700	170
NIGHT	400	200

Test if there is any association between shifts and quality at 5%.

4. The times required by three workers to perform an assembly-line task were recorded on five randomly selected occasions. Here are the times, to the nearest minute.

Hank	Joseph	Susan
8	8	10
10	9	9
9	9	10
11	8	11
10	10	9

Construct one-way Anova table for the given data.