Introduction to Statistical Methods

(S2-22_DSECLZC418) – Assignment 1

DSE Section 1

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. The accompanying table gives information on the type of coffee selected by someone purchasing a single cup at a particular airport kiosk.

	Small	Medium	Large
Regular	14%	20%	26%
Decaf	20%	10%	10%

Consider randomly selecting such a coffee purchaser.

a. What is the probability that the individual purchased a small cup?
b. What is the probability that the individual purchased a small cup of decaf coffee?
c. If we learn that the selected individual purchased a small cup, what now is the probability that he/she chose decaf coffee, and how would you interpret this probability?

2. Consider the following information about travelers on vacation (based partly on a recent Travelocity poll): 40% check work email, 30% use a cell phone to stay connected to work, 25% bring a laptop with them, 23% both check work email and use a cell phone to stay connected, and 51% neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, 88 out of every 100 who bring a laptop also check work email, and 70 out of every 100 who use a cell phone to stay connected also bring a laptop.
a. What is the probability that a randomly selected traveler who checks work email also uses a cell phone to stay connected?
b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

3. There were 85 people in a meeting hall and they were asked whether they like to sing or dance in their free time. There were 27 men who liked to dance and 20 men who liked to sing. Also, out of the 38 women 17 liked todance. Find the probability that the person likes to dance given that the person is a woman.

4. The probabilities of A, B, and C becoming front managers are 0.1, 0.4 and 0.2 respectively. The probabilities that the new incentive scheme will be introduced if A, B, and C become deputy managers are 0.5,0.5, and 0.5. Find the probability that the deputy manager that has been appointed is A,after the incentive scheme was introduced using rule.

----ALL THE BEST----