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|  | **BAHRIA UNIVERSITY,**  **(Karachi Campus)**  *Department of Software Engineering*  **ASSIGNMENT 4 – Fall 2023** |

COURSE TITLE: **Probability & Statistics**  COURSE CODE: **GSC 122**

Class: **BSE - 3** Shift: **Morning**

Course Instructor: **Dr. Muhammad Hussain** Date: **Dec 20, 2023**

Due Date: **Oct 27, 2023** Marks: **5.0 Marks**

**Analysis of Continuous Probability Distributions CLO-3**

Q.1 Suppose the current measurements in a strip of wire are assumed to follow a normal distribution with a mean of 10 milliamperes and a variance of 4 milliamperes2.

1. What is the probability that a measurement will exceed 13 milliamperes?
2. Determine the value for which the probability that a current measurement is below this value is 98%.

Q.2 A lawyer commutes daily from his suburban home to midtown office. The average time for a one-way trip is 24 minutes, with a standard deviation of 3.8 minutes. Assume the distribution of trip times to be normally distributed.

1. If the office opens at 9:00 A.M. and the lawyer leaves his house at 8:45 A.M. daily, what percentage of the time is he late for work?
2. Find the probability that 2 of the next 3 trips will take at least 1/2 hour.

Q.3

(a) Suppose that a sample of 1600 tires of the same type are obtained at random from an ongoing production process in which 8% of all such tires produced are defective. What is the probability that in such sample 150 or fewer tires will be defective?

(b) If 10% of men are bald, what is the probability that more than 100 in a random sample of 818 men are bald?

Q.4 A soft-drink machine is regulated so that it discharges an average of 200 milliliters per cup. If the amount of drink is normally distributed with a standard deviation equal to 15 milliliters,

1. what fraction of the cups will contain more than 224 milliliters?
2. is the probability that a cup contains between 191 and 209 milliliters?
3. chow many cups will probably overflow if 230- milliliter cups are used for the next 1000 drinks?
4. below what value do we get the smallest 25% of the drinks?

Q.5 The loaves of rye bread distributed to local stores by a certain bakery have an average length of 30 centimeters and a standard deviation of 2 centimeters. Assuming that the lengths are normally distributed, what percentage of the loaves are

1. longer than 31.7 centimeters?
2. between 29.3 and 33.5 centimeters in length?
3. shorter than 25.5 centimeters?