SHIVAJI COLLEGE

ASSIGNMENT 1

STATISTICS (BBE -IV SEMESTER)

QUESTION 1. A particular brand of dishwasher soap is sold in three sizes: 25 oz, 40 oz and 65 oz.

Twenty percent of all purchasers select a 25-oz box, 50% select a 40-oz box and the remaining 30% choose a 65-oz box. Let X_1 and X_2 denote the package sizes selected by two independently selected purchasers.

a) Determine the sampling distribution of $\bar{x}$, calculate $E(\bar{x})$, and compare to μ.

b) Determine the sampling distribution of the sample variance S^2 , calculate $E(S^2)$, and compare to σ.

Question 2. The breaking strength of a rivet has a mean value of 10,000 psi and a standard deviation of 500 psi.

a) What is the probability that the sample mean breaking strength for a random sample of 40 rivets is between 9900 and 10,200?

b) If the sample size had been 15 rather than 40, could the probability requested in part (a) be calculated from the given information?

NOTE-

1) Each question carry 5 marks. Total marks for this assignment is 10.

2) Deadline - 12th April 2024

3) Prefer blank A4 size paper for doing the assignment