SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF ECONOMICS

INTERNAL TEST-I

(Academic Year- 2023-24)

Name of the Course: B.A.Economics (H) Semester: II

Name of the Paper: Intermediate statistics for economics Faculty Name: Ms. Kavita Yadav

Unique paper code: 2272101203 Maximum Marks: 12

Duration : One Hour

Date of Test : 1st March '24

QUESTION: 1

Let Y be the number of contracts received by a randomly selected infrastructure company. Suppose the probability mass function of Y is as follows:

Y	1	2	3	4
P(Y)	0.2	0.4	0.3	0.1

(a) Consider a random sample of two companies, obtain the probability distribution of S^2 (sample variance).

(b) Calculate P (S2 > 2.7) and P ($1.5 < S^2 \leq 7.9$), when a random sample of size two is selected.

QUESTION: 2

(a) How is systematic sampling different from judgmental sampling. If Var(X,) is variance of X, and Var(X_2) is variance of X, then Var (aX, bX_2) = a2Var(X) + b^2Var(X_2), where a and b are constants. Is this statement true? Explain.

(b) The teacher of an economics class of size 35 knows that the time needed to evaluate a randomly chosen first year paper is a random variable with mean value of 4 minutes and a standard deviation of 3 minutes. If evaluation times are independent and the teacher starts evaluation at 5:30 pm and evaluates continuously, what is the probability that she completes evaluation before 8pm dinner starts?

Kavita Yadav