

SHIVAJI COLLEGE, UNIVERSITY OF DELHI
DEPARTMENT OF ECONOMICS
INTERNAL TEST (Academic Year 2023-24)

Name of the Course : B.A.(P) Semester: 2
Name of the Paper : Basic Statistics for Economics Faculty Name : Nikita Gupta
Duration : 50 minutes Maximum Marks: 20
Date : 23.04.2024

Attempt all Questions.

Q1 a) For 2 events A and B, $P(A)=0.4$, $P(B)=0.2$ and $P(A \cap B) = 0.1$. Find $P(A|B)$. Are A and B independent events? (3)
b) A pair of dice is tossed.

A: [Exactly one of the dice shows a 1]

B: [The sum of numbers on the 2 dice is even]

- i) Identify the sample points in A, B, $A \cap B$, $A \cup B$, A^c .
ii) Find $P(A \cup B)$. Are A and B mutually exclusive events? (2.5+2.5)

Q2 a) Machine has 14 identical components that function independently. It will stop working if 3 or more components fail. If the probability that the component fails is 0.1, find the probability that the machine will be working. (5)

b) Consider a powder specimen that has exactly 10 particles. Suppose that the number of particles in the sample follows an approximate distribution between 0 and 10.

- i) Find the probability that 8 or fewer particles would be detected in the specimen.
ii) Find the probability that between 2 and 5 particles are detected. (2.5+2.5)

Q3 How do we convert a normal distribution to standard normal distribution (2)

Nikita

Faculty Signature: Nikita Gupta