Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Term Evaluation (Even) Semester Examination March 2025

Roll no...2492525.....

Name of the Course: **BCA/BCA AI & DS**
Semester: **2nd Semester**
Name of the Paper: **Probability and Statistics for Data Science**
Paper Code: **TBC-204 /TBD-204**
Time: 1.5 hour **Maximum Marks: 50**

Note:
(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. CO1(10 Marks)

a. a. Define the following terms
(i) Primary and Secondary data (ii) Collection of data

OR

b. Define and explain Discrete and Continuous Data using suitable examples

Q2. CO1 (10 Marks)

a. Explain Exploratory Data Analysis.

OR

b. Give the Probability Density Function (p.d.f), graph and characteristics of Normal Distribution.

Q3. CO2 (10 Marks)

a. Define the following terms:
(i) Sample Space (ii) Mutually Exclusive cases
Also give the sample space for tossing of 3 coins simultaneously.

OR

b. State Baye's theorem of probability. Three bags contain 6 red, 4 black; 4 red, 6 black; 5 red and 5 black balls respectively. One bag is selected at random and a ball is drawn. If the ball drawn is red, find the probability that it is drawn from the first bag?

Q4. CO2 (10 Marks)

a. Two dice are rolled together. Let X denote the random variable which counts the sum of numbers on the upturned faces. Construct the distribution function (p.m.f) and also find expectation of X.

OR

b. Define Poisson distribution. Given that the probability of some person will be suffering from blood cancer is 0.0001. If 5000 persons are examined, find the probability of the following:
(i) Exactly 2 persons will be suffering. (ii) At most 2 persons will be suffering.
(ii) At least 1 person will be suffering.

Q5. CO2 (10 Marks)

a. Give the probability density function (p.d.f), mean, variance and properties of rectangular distribution.

OR

b. A coin is tossed 10 times. Find the probability of following events:
(i) exactly 7 heads occur (ii) At most 1 head occur (iii) At least 7 heads occur.