

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Spring- 2025

Course Code: STAT 2311 Course Title: Probability and Statistics

Total marks: 30, Time: 1 hours 30 minutes

[Answer all the questions; Figures in the right hand margin indicate full marks.]

CO DL

1.

a) What is a questionnaire?

2 CO1 C1

b) Design a structured questionnaire with at least 20 questions on the topic: "Factors Affecting Adverse Reactions of COVID-19 Vaccine in Bangladesh."

8 CO1 C6

2.

a) What is the geometric mean? How is it different from the harmonic mean? Explain the applications of various measures of central tendency.

5 CO1 C2

b) The boot time (in seconds) of 20 different systems in a lab is recorded as follows:

5 CO1 C4

Boot Time (sec)	5-10	10-15	15-20	20-25	25-30
No. of Systems	2	5	7	4	2

(i) Calculate the first quartile (Q_1), ninth decile (D_9), and eighty-seventh percentile (P_{87}) from the given data.

(iv) Draw an appropriate cumulative frequency curve (ogive) and use it to locate the values of Q_2 , D_9 , and P_{71} .

3.

a) What are the various types of measures of dispersion in statistics? Explain any two with appropriate examples.

5 CO1 C2

b) The accuracy rates (in percentage) of two machine learning models, Model A and Model B are as follows:

5 CO1 C4

Model A	89	92	85	91	88	90
Model B	86	88	87	84	89	Your weight (in kilograms)

(i) Which model has a higher average accuracy?

(ii) Which model demonstrates greater consistency in its accuracy rates?

Or

a) Define a variable with an example, and explain how a discrete variable differs from a continuous variable.

5 CO1 C2

b) Write your birthdate in ddmmyyyy format (with a zero before single-digit day or month if needed), separating each digit with commas. Then, calculate the coefficient of variation for these digits.

5 CO1 C4