International Islamic University Chittagong (IIUC)

Department of Electronic and Telecommunication Engineering

Midterm Examination

Program: **B.Sc. (Engg.)**
Course Code: **STAT 2441**
Total Marks: **30**

Semester: **Autumn 2023**
Course Title: **Probability and Statistics**
Time: **1 Hour 30 Minutes**

(i) Answer the following questions. The figures in the right-hand margin indicate full marks.
(ii) Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.

Course Outcomes (COs) of the Questions

CLO1	Demonstrate understanding of descriptive statistics by practical application of quantitative reasoning and to the solution of engineering problems with data visualization.
CLO2	To be able to compute and interpret the results of correlation and regression.

Bloom's Levels of the Questions

Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

Q1.	a)	Depending on how data can be used, statistics is sometimes divided in to two main areas or branches. Write about them.	CLO1/ CLO2	R/U	2
	b)	Measurement is the assignment of numbers to objects or events in a systematic fashion. Four levels of measurement scales are commonly distinguished. Write about them with examples.	CLO2	R/U	8
		OR			
Q1.	a)	Explain the applications, uses and limitations of statistics.	CLO1/ CLO2	R/U /An	5
	b)	Explain the five stages or steps in any statistical investigation.	CLO2	R/U /An	5
Q2.	a)	A social worker collected the following data on marital status for 25 persons.(M=married, S=single, W=widowed, D=divorced) Make a table for the following data using the concept of categorical frequency Distribution. **S M M** **W D D** **S S S** **M S D** **W D S** **S M M** **M W D** **W W D D** Use the following columns: **i)** Class **ii)** Tally **iii)** Frequency **iv)** Percent	CLO1/ CLO2	R/U /An	4

	b)	Construct a table for the following data using the concept of Grouped frequency Distribution. 22 38 23 21 26 34 39 27 14 31 22 27 11 29 6 33 19 20 18 17 Use the following columns: i) Class limit ii) Class boundary iii) Class Mark iv) Tally v) Freq. vi) Cf (less than type) vii) Cf (more than type) viii) rf. ix) rcf (less than type)	CLO2	R/U /An	6
Q3.	a)	Define A student obtained the following percentage in an examination: English 50, Biology 65, Mathematics 68, Physics 79, and chemistry 55. Find the students weighted arithmetic mean if weights 4, 2, 2, 2, 4 respectively are allotted to the subjects. Find the weighted mean.	CLO1/ CLO2	U/A /E	3
	b)	Following is the distribution of the size of certain farms selected at random from a district. Calculate the mode of the distribution. Size of farms | No. of farms 5-15 | 8 15-25 | 12 25-35 | 17 35-45 | 29 45-55 | 31 55-65 | 5 65-75 | 3	CLO1/ CLO2	U/A /E	3
	c)	Prove that "The logarithm of the Geometric Mean of a set of observation is the arithmetic mean of their logarithm."	CLO1/ CLO2	U/A /E	4