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Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology
Midterm Examination, Fall 2025
Course Code: STA 101; Course Title: Statistics I
Sections & Teachers: TBN (43_A-43_D, 43_N); TK (43_I-43_M); MSAM (43_E-43_H, 43-O)
Time: 1 Hour 30 Mins **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	Suppose that a new antibody drug is currently under study. It is given to patients once the symptoms have revealed themselves. Of interest is the average (mean) length of time in months' patients live once they start the treatment. A set of 40 patients were selected from the start of treatment until their deaths. Among them, three data (in months) are 34, 45, and 47 were collected. **Describe** what the key terms refer to in the scenario (Population, Sample, Parameter, Statistic, Variable, and Data).	3	**CLO-1** ***Level-2***
	b)	**Comment** the correct data type (qualitative or quantitative) and the correct level of measurements. i. *The time (in minutes) it takes you to commute to campus.* ii. *The colors of the houses around the park*	2	
2.	*a)*	The following distribution represents the income (in Tk) of a mobile repairing shop in different days. 35, 54, 20, 47, 26, 72, 38, 41, 24, 32, 69, 78, 61, 34, 29, 45, 56, 67, 75, 43, 37, 59, 52, 63, 50 i. **Derive** a frequency distribution table with cumulative relative frequencies. ii. **Sketch** an appropriate graph for the given data. iii. **Investigate** the Mean, Median and Mode from the frequency distribution in part (i).	4+2+4=10	**CLO-2** ***Level-3***
	b)	**Investigate** Q_2, D_8, and P_{80} of income (in Tk) and **comment** on the findings.	3	
3.	*a)*	A study looks at how students' sleep habits affect their test performance. The table below shows the average hours of sleep per night and their corresponding exam scores for 8 students: i. **Sketch** a Box and Whisker Plot for X and Y. ii. **Investigate** X and Y according to their variability.	2+2=4	**CLO-3** ***Level-3***
	b)	**Attain** the shape characteristics of the distribution of Exam Score (Y). (N.B. μ_1= 61.63, μ_2= 130.73, μ_3 = 287.80, μ_4 = 26437.67)	3	

Sleep Hours (X)	3	4	5	6	7	8	9	10
Exam Score (Y)	45	50	52	58	65	70	75	78

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