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Daffodil International University

Faculty of Science & Information Technology
Department of Software Engineering
Midterm Examination, Fall 2026
Course Code: STA 101; Course Title: Statistics I
Sections & Teachers: A, B, C, D (MST), E, F, G, H (MAUA), I, J (DSA)

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)*	A university is conducting a study to investigate the average amount of time students spend studying each day. A sample of 10 students was selected randomly from the university, and their daily study times (in hours) were recorded as follows: 2, 3, 1, 4, 2, 5, 3, 2, 4, and 3. The researchers want to estimate the average daily study time of all students at the university. Identify the following terms in this scenario: Population, Sample, Parameter, Statistic, Variable, and Data.	[3]	CLO-1 *Level-2*
	b)	Indicate the correct data type (qualitative or quantitative) and the correct levels of measurements. i. The number of phone calls one receives in a day dis, Ratio ii. The rank one holds in Scouts ordinal	[2]	
2		The daily wages (taka) of 30 workers are given below: 204, 108, 101, 129, 119, 149, 210, 103, 104, 146, 127, 123, 108, 149, 136, 187, 102, 191, 148, 163, 172, 118, 104, 132, 131, 142, 183, 105, 195, 144		CLO-2 *Level-3*
	a)	Construct a frequency distribution with cumulative and percentage frequencies.	[4]	
	b)	Compute the 5th Decile and 60th Percentile and comment on the findings.	[2]	
3		The daily coding output (in hundreds of lines) of two software development teams over six days is given below: Team Alpha: 60, 75, 95, 100, 55, 85 — $S = 18.34$ Team Beta: 80, 125, 90, 150, 82, 95 — $S = 27.90$		CLO-2 *Level-3*
	a)	Investigate the mean and variance of both the teams.	[4]	
	b)	Using the coefficient of variation (C.V.), determine which team has more consistent coding productivity. CV = 23.41%, CV = 26.91%	[3]	
4	*a)*	The number of bugs detected in 12 software testing sessions is given below: 25, 30, 35, 40, 42, 45, 48, 50, 55, 60, 65, 105 Detect if there is any outlier(s) in the above dataset. Also Sketch a Box-Whisker plot. $Q_1 = 37.5$, $Q_2 = 46.5$, $Q_3 = 57.5$, IQR = 20	[5]	CLO-3 *Level-3*
	b)	Determine the shape characteristics of the distribution of software debugging time using the coefficients of skewness and kurtosis. [Given, $\mu_2 = 100$, $\mu_3 = 800$, $\mu_4 = 27000$] positively, platykurtic	[2]	

$D_5 = 134$ Team Alpha consistent

$P_{60} = 145$