



Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology

Midterm Examination, Fall 2024

Course Code: STA 101; Course Title: Statistics I

Sections & Teachers: AST (41_A-41_G), MNM (41_H-41_N)

Time: 1 Hour 30 Mins

Marks: 30

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.]

[The following questions are to be attempted. The full marks and corresponding portions of each question must be answered sequentially.]																		
1.	a)	A researcher wants to study the number of hours students spend studying per week. The university has 15,000 students. The researcher selects a sample of 500 students using stratified random sampling based on their major (e.g., Science, Arts, Engineering). Clarify population, sample, parameter, statistic, variable and sampling technique from the above case study.	3	CLO-1 Level- C2														
	b)	Compare the appropriate measures of central tendency for nominal, ordinal, interval and ratio data?	2															
2.	a)	Suppose, following data represents the amount of time (in minutes per day) spending on social media of 15 students in a shelf: 250, 320, 280, 310, 400, 290, 300, 330, 180, 290, 480, 285, 275, 260, 295 .		CLO-2 Level-3														
	i)	Construct an appropriate graph using the above data.	3															
	ii)	Decide is there any "Outlier" in the above dataset. Also represent with a modified box-Plot.	4															
	b)	Consider the following data set representing the weekly income (in dollars) of a group of employees: 400, 450, 500, 550, 600, 650, 700, 750, 800, 1200. Calculate the mean, median, and mode.	3															
	i)	If a new employee with a weekly income of 5000 dollars joins the group, investigate how this change will affect the mean, median, and mode.	2															
	ii)	Determine which measure of central tendency would you recommend using to describe the data after the new employee joins, and why?	1															
3.	a)	The weekly sales of phone of two brands Samsung and One plus are recorded as below: <table border="1" style="margin: 10px auto; width: 80%;"> <tbody> <tr> <td>OnePlus</td> <td>59</td> <td>75</td> <td>95</td> <td>100</td> <td>56</td> <td>85</td> </tr> <tr> <td>Samsung</td> <td>80</td> <td>90</td> <td>150</td> <td>125</td> <td>82</td> <td>95</td> </tr> </tbody> </table> Compare brand seems to be more consistent in respect to sales. Solve using relative measure of dispersion.	OnePlus	59	75	95	100	56	85	Samsung	80	90	150	125	82	95	5	CLO-3 Level-3
OnePlus	59	75	95	100	56	85												
Samsung	80	90	150	125	82	95												
	b)	In a survey of 10 SWE students, we gathered data on their weekly coding practice (in hour). The recorded times are as follows: 3.0, 2.9, 3.7, 4.0, 3.1, 3.6, 4.3, 3.4, 2.2, 2.1 Detect 20% students practice time who spend maximum time in coding in a week.	2															