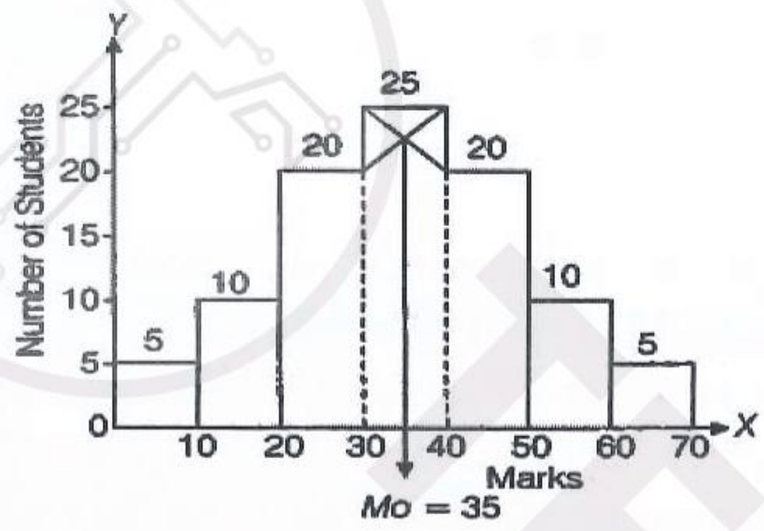
Daffodil International University

Department of Computer Science and Engineering
Faculty of Science and Information Technology
Midterm Examination, Semester: Fall'2019
Course Code: STA 133 Course Title: Statistics and Probability
Section: All **Course Teacher: All**

Time: 01.30 hours **Full Marks: 25**

Answer sequentially any three of the following questions including question # 1:

1. a. Here is a graphical presentation for the marks of several students. [4]



Mo=Mode

i. What is this chart called?
ii. What is the total number of students and class interval?
iii. What is the cumulative no. of students for the 20 up to 30 classes?
iv. What is the mark of the most of the students?

b. The following set of scores was obtained from a quiz. 4,5,8,9,11,13,15,18,18,18 and 20. The teacher computes the usual descriptive measures of central tendency and spread for these data and then discovers that an error was made. One of the 18's should have been a 16. Which of the following measure/measures will NOT need to be changed from the original computations? (There may be more than one correct answer) [5]

i. Mean
ii. Median
iii. Standard deviation
iv. IQR
v. They all will need to be changed

Evaluate your answer by computing.

c. A random sample of 14 people was asked to record the number of kilometers traveled by a minibus in a given week. The distances, to the nearest kilometer, are shown below: [4]
68,77,86,43,94,49,94,81,73,78,54,42,49 and 87.
Are there any outliers? Detect the outliers by using Box plot.

d. Stephen has been working on programming and updating a Web site for his company for the past 15 months. The following numbers represent the number of hours Stephen has worked on this Web site for each of the past 7 months: 25, 36, 12,20,30,25 and 20. [2]

Calculate S.D (*standard deviation)* and Q_3.

2 a. By using the data 1(a), calculate the marks of 90% students. [2]

b Each of a sample of 117 residents selected from a small town is asked how much money he or she spent last week on state lottery tickets. Ninety-two of the residents responded with \$0. The mean expenditure for the remaining residents was \$19. The largest expenditure was \$226. [3]

i. What is the range of the data (in dollars)?
ii. What is the mode?
iii. What proportion of the sample did not purchase any lottery tickets?

3. a. Write down the importance of measures of central tendency. [1]

b. The following table of grouped data represents the weight (in pounds) of 96 computer towers. [4]

Weight (pounds)	Number of Computers
3 - 5	8
5 - 7	25
7 - 9	45
9 - 11	18

i. Calculate the mean weight for a computer.
ii. Calculate the weights which 25% of the computer lies?
iii. Find out the value of 7^{th} decile and median value.

4. a. The data set below represents the annual rate of return (in percent) of six randomly sampled bond mutual funds, and the annual rate of return (in percent) of six randomly sampled stock mutual funds. Use the information in the table below to complete parts (i) through (iii). [3+1+1]

Bond mutual funds	3.1	1.8	2.3	1.5	1.7	3.3
Stock mutual funds	9.3	9.0	8.3	8.0	7.5	7.3

i. Determine the mean and standard deviation of each data set.
ii. Based on the standard deviation, which data set have more spread?
iii. Based on the CV, which data is more consistent?