Daffodil International University

**Department of Computer Science and Engineering**

**Faculty of Science & Information Technology**

**Midterm Examination, Fall 2022**

**Course Code: STA 221, Course Title: Statistics and Probability**

**Level: 2 Term: 2 and 3 Batch: All**

**Time: 01:30 Hrs** **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)* | Define your understanding of Descriptive and Inferential Statistics with examples. | [2] | CO |
| | *b)* | Illustrate different types of variables with the level of measurement. Define central tendency. | [3] | |
| 2. | | The pair of walking shoes sold in 20 different shops are given below:<br>41, 62, 81, 44, 97, 66, 80, 79, 72, 60, 76, 83, 69, 55, 54, 85, 90, 63,75, 87 | | CO |
| | *a)* | Construct a frequency distribution table using appropriate class intervals. | [1] | |
| | *b)* | Develop Histogram, frequency polygon, and ogive curve. | [3] | |
| | *c)* | Find the average and median pairs of walking shoes from the frequency distribution table | [1] | |
| 3. | | The following data are the numbers of laptops provided by DIU for 16 sections of CSE 27, 30, 7, 10, 83, 34, 20, 15, 9, 6, 12, 18, 51, 36, 67, and 85. | | |
| | *a)* | Apply appropriate equations to find the 3rd Quartile, 5th Decile, and 68th Percentile. | [3] | |
| | *b)* | Identify the skewness and interpret it. | [2] | |
| 4. | | In an attempt to determine the relationship between the daily midday temperature (measured in Degree Celsius) and the number of defective parts produced during that day, a company recorded the following data: | | C |

| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Temperature | 24.2 | 22.7 | 30.5 | 28.6 | 25.5 | 32.0 | 33.0 | 35 | 35 | 37 |
| No. of Defects | 25 | 31 | 36 | 33 | 19 | 24 | 24 | 29 | 40 | 36 |

| | | | |
|---|---|---|---|
| | *a)* | Construct a scatter diagram for this data and comment on it. | [1] |
| | *b)* | Assume the value of the coefficient of determination and interpret it. | [3] |
| 5. | | The number of students in the different batches who are experts in a particular programming language who are going to participate in a competition is given below<br>20, 25, 33, 19, 37, 29, 14, 39, 22, 23, 38 and 12 | |
| | *a)* | Analyze the value of Standard Deviation from this data. | [3] |
| | *b)* | In the computer lab, the score of lab performance among the students is 10, 7, 13, 11, 15, 9, 18, and 12. Organize in ascending order & find the median. | [2] |
| | *c)* | Select which measure of dispersion is better and why? | [1] |