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# Daffodil International University

## Faculty of Science & Information Technology

## Department of Computing and Information System

### Final Examination, Spring-2026

### Course Code: STA101, Course Title: Statistics-I

**Level: 2 Term: 3**

**Exam Duration: 2 Hours** **Marks: 40**

**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.]***

| | | Questions | Marks | CLO & Level |
|---|---|---|---|---|
| 1 | | | | |
| | a) | Distinguish between correlation and regression analysis. | [2] | CLO- 1 *Level- 1,2,3* |
| | b) | Interpreter: r = -0.02, r = +0.94 | [1] | |
| | c) | Calculate the five-number summary for the following dataset representing the daily high temperatures (in degrees Fahrenheit) recorded over two weeks:<br>62, 65, 68, 70, 72, 72, 75, 78, 80, 82, 85, 88, 90, 95 | [5] | |
| 2 | | | | |
| | | Using the following data: | | CLO-2 *Level- 4,3,2* |

| Daily wages | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
|---|---|---|---|---|---|---|---|
| Factory A | 15 | 30 | 44 | 60 | 30 | 14 | 7 |
| Factory B | 25 | 40 | 60 | 35 | 20 | 15 | 5 |

| | | | | |
|---|---|---|---|---|
| | a) | Which factory pays higher average wages? | [4] | |
| | b) | Calculate wages of that factory which have higher variability. | [6] | |

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| | | | | | |
|---|---|---|---|---|---|
| 3 | | | | | |
| | | | | | |

| Capital (X) | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|
| Profit (Y) | 3 | 4 | 8 | 12 | 18 |

| | | | |
|---|---|---|---|
| | a) | Construct two regression equations. | [7] CLO-3 Level- 3,4 |
| | b) | Demonstrate the co-efficient of co-relation between capital and profit and also interpret the result. | [3] |
| 4 | | | |
| | a) | Define type I error and type II error. | [2] CLO-3 Level- 1,3,4,5 |
| | b) | A bag contains 5 apples and 3 oranges. 3 fruits are selected at random without replacement. Find the probability of getting-<br>(a) at least a apple<br>(b) 2 apples and an orange. | [3] |
| | c) | The mean lifetime of a sample of 100 tubelights produced by a company is found to be 1570 hours with standard deviation of 80 hours.Is there enough evidence to support the mean lifetime of the tubes produced by the company is 1600 hours. ( At 5% significance level the critical value is 1.96) | [3] CLO-4 Level- 3,4,5 |
| | | You are given the following data about the lives of two brands of bulbs to answer the question below: | |

| | Mean life | Standard deviation | Sample size |
|---|---|---|---|
| Brand A | 2230 hrs | 300 hrs | 15 |
| Brand B | 2000 hrs | 250 hrs | 12 |

| | | | |
|---|---|---|---|
| | d) | Evaluate whether there is a significant difference in the quality of two brands of bulbs at 1% level of significance?<br>( At 1% significance level the critical value is 2.779) | [4] |