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# Daffodil International University

**Faculty of Science & Information Technology**
**Department of Computer Science & Engineering**
**Midterm Examination, Spring 2025**
**Course Code: CSE112, Course Title: Computer Fundamentals**
**Level: 01 Term: 01 Batch: 68**

**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.]***

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|---|---|---|---|---|
| **1.** | *a)* | Explain how the different phases of the computer data processing cycle—input, processing, output, and storage—are used in a modern e-commerce system. Provide examples of how data flows through these phases in an online shopping platform. | 5 | **CO1** |
| **2.** | *a)* | Compare the hardware and software advancements in 5th-generation computers with those of the 4th-generation. How have these improvements facilitated the development of artificial intelligence? | 4 | **CO1** |
| | *b)* | Summarize the functioning of the control unit and ALU in a processor. How do these components work together to execute an instruction cycle? | 3 | |
| | *c)* | Explain why multi-core processors improve performance over single-core processors. | 3 | |
| **3.** | *a)* | Perform the following conversions. Show the step-by-step process and provide the final result.<br>i. $(85.375)_{10} = (?)_2$<br>ii. $(132)_4 = (?)_6$ | 4 | **CO2** |
| | *b)* | Perform the following binary operations and show all steps:<br>i. 10000010- 01010111=?<br>ii. Divide the binary number 11010101 by 101 using long division. Show the steps and provide the quotient and remainder. | 3 | |
| | *c)* | Apply the complementary method to subtract $(011100)_2$ from $(0101101)_2$. Show the steps involved in the process and explain how you handle the negative result. | 3 | |