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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2026
Course Code: CSE112 , Course Title: Computer Fundamentals
Level:1 Term:1 Batch: 73

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)*	Describe the roles and responsibilities of a QA Engineer, Data Administrator and Users in the software development process.	3	CO1
	b)	Indicate 4 differences between Primary Storage and Secondary Storage.	2	
	c)	During the 1st-Semester Final Examination, a student receives the following marks in four subjects: • English = $(81.67)_9$ • IBCC = $(1001110)_2$ • Mathematics = $(1001.2)_4$ • Computer Fundamentals = $(322)_5$ Calculate the student's total marks in all four subjects and express the final answer in base 6.	5	
	d)	Draw the circuit diagram of the following function using NOR gates only. F (x,y,z) = xy + zy′ You cannot simplify the function. Just implement whatever is given in the question.	4	
	e)	Divide $(625431)_7$ by $(156)_7$ using the base-7 division method. Do not convert the numbers to decimal. Find the quotient and remainder.	3	
2.	*a)*	Nowadays, AI tools are widely used for academic tasks, programming, content creation, and problem-solving. However, to get accurate and useful results, users need to write clear and effective prompts. At the same time, they must be aware of ethical issues such as bias, privacy violations, and the misuse of AI-generated content. i. Explain the importance of prompt engineering in obtaining effective results from AI tools. ii. How can users reduce ethical risks when using AI tools?	2+2	CO2

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	b)	Two students: Farhan and Zayan are preparing for their 1st-semester final examinations. Each of them is using a different unsupervised learning technique to analyze academic data. • Farhan is analyzing students' subject selection records to identify which subjects are frequently chosen together, helping the university recommend suitable subject combinations. • Zayan is analyzing students' marks across multiple subjects to reduce the number of variables while preserving important information, making it easier to visualize overall performance patterns. Identify the type of unsupervised learning algorithm used by each student.	**0.5+0.5**	
	c)	Two types of AI are illustrated in the following examples. AI System X is used in a hospital to detect diseases from X-ray images, while AI System Y is a hypothetical intelligent robot that can learn and perform various tasks, such as teaching students, cooking meals, and solving unfamiliar problems. Identify the types of AI represented by Systems X and Y, and write two differences between them.	**0.5+0.5 +2**	