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Daffodil International University

Faculty of Science & Information Technology

Department of Software Engineering

Midterm Examination, Fall- 2025

Course Code: SE 312

Course Title: Software Quality Assurance & Testing

Sections & Teachers: (A-C, QFF) (D-MNA) (E-AUA) (F-H, SA) (I, J-AAS) (K, L-SIM) (M, N-NAN)

Time: 1 Hour 30 Min **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)*	A software company is developing a Healthcare Management System with modules for patient records, appointment scheduling, and billing. Initially, testing began only after the coding phase, with no early reviews or static testing. Furthermore, due to time constraints, the QA team focused mainly on the appointment module, while other modules received limited attention. In subsequent testing cycles, the same regression tests were reused, and consequently, fewer new defects were found. As a result, developers assumed the system was error-free and ready for release. However, during User Acceptance Testing (UAT), hospital staff discovered major usability and performance issues, making the system difficult to use in real hospital operations. **Summarize** the scenario and relate **five of the seven software testing principles** to it, explaining how each principle is shown or violated.	[Marks 5]	**CLO-1 Level-2**
	b)	Two software testers are assigned to develop the same product but follow different development strategies. The first tester begins testing only after the entire coding phase is completed. The second tester plans testing activities alongside each development stage, ensuring that every phase has a corresponding testing phase. As a software quality assurance professional, analyze which tester's approach would likely produce a more reliable and defect-free product. **Explain** your answer by **comparing** the two approaches with diagrams.	[Marks-5]	**CLO-1 Level-2**

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2	*a)*	A software component calculates the sum of two integers, a and b, such that the output is a + b. The valid input ranges are: a ∈ [1, 10] b ∈ [20, 40] Using the Boundary Value Checking (BVC) technique, **Analyze** the input domain and design appropriate test cases that cover all valid boundary values for both inputs. Create a complete test-case table that includes each test input pair (a, b), and the expected output.	[Marks-5]	CLO-2 Level-4
	b)	A vending machine sells cold drinks. A customer will receive a drink only if: · They insert **at least $1** · They press the **"Select Drink"** button **Tasks:** 1. **Analyze** the input conditions and possible customer actions. 2. Identify all conditions and corresponding actions. 3.Design a decision table that covers all possible combinations, including valid and invalid scenarios	[Marks-5]	CLO-2 Level-4
	c)	A conference registration system accepts applications only if: • The registration date is between 1st June 2025 and 30th June 2025 (inclusive). • The registration amount is 12000. If any condition is violated, registration should be rejected. Use Equivalence Partitioning to **Illustrate** test cases for the registration system based on date and amount	[Marks-5]	CLO-2 Level-4