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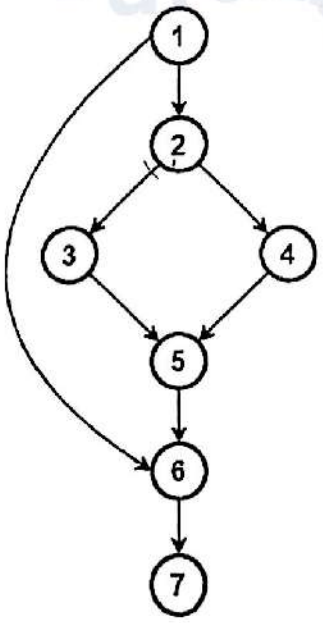
Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology
Semester Final Examination Spring 2026
Course Code: SE113; Course Title: Introduction to Software Engineering
Sections & Teachers: IM (47-A), RM (47-B, 47-C, 47-D, 47-E), NML (47-F), FF (47-G)

Duration: 2:00 Hours **Full 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.]

1.	A company, *TechNova Solutions*, is developing an **Online Healthcare Management System (OHMS)** for multiple hospitals. The system includes modules for patient registration, appointment scheduling, electronic medical records, billing, and reporting. The team consists of developers, testers, and a project manager. During development, the team faces requirement changes, tight deadlines, and integration risks.			CLO1 Level 2
	a)	**Explain** the phases of **software project management** in the context of the **OHMS** project.	[Marks – 5]	
	b)	**Define software testing** and **explain its importance** for this system.	[Marks – 3]	
	c)	The **OHMS appointment scheduling system** allows booking appointments between **1 and 30 days** in advance. **Explain** how **Boundary Value Analysis (BVA)** can help in identifying important test cases at the limits of this input range.	[Marks – 2]	
2.	*a)*	The project consists of the following tasks: **Task / Duration (weeks) / Dependency** A / 3 / — B / 4 / A C / 3 / A D / 5 / B E / 4 / B, C F / 3 / C G / 2 / D, E, F H / 4 / G **Draw the task dependency diagram** and **demonstrate the critical path** and **total project duration.**	[Marks – 8]	CLO2 Level 3
	b)		[Marks – 7]	

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		Calculate the Cyclomatic Complexity using adjacency matrix and predicated nodes from the above Control Flow Graph (CFG).		
3.	***a)***	**Outline three risks** in the **OHMS** project from Question 1 and **discuss mitigation strategies** for any one of them.	**[Marks – 5]**	**CLO3 Level 2**
	b)	**Explain** any two appropriate software testing techniques with examples from the scenario described in Question 1.	**[Marks – 5]**	
	c)	Assume that the expected size of an **organic software project is 43.1 KLOC.** Using the coefficients in the table below and the **Basic COCOMO** model, **calculate Effort, Development Time** and **Number of People** required to complete the project.	**[Marks – 5]**	

Project Class	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.38
Embedded	3.6	1.20	2.5	0.12

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