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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

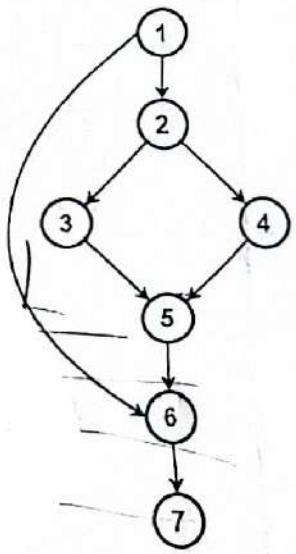
[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

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]

b)



[Marks – 7] CLO2 Level 3

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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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