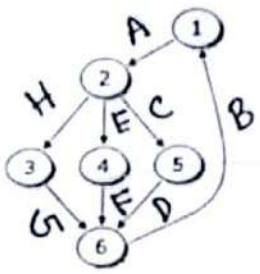
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Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Spring 2024
Course Code: SE 113; Course Title: Introduction to Software Engineering
Sections: A, B, C, D, E, F, G, H, I, J, and K
Course Teachers: DAKM, MKS, MSA, RHH, and MS

Time: 2 Hours **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)*	**Describe** various methods of Black box testing, providing an example for each technique.	5	**CLO-1** *C2*
	b)	**Estimate** the Cyclomatic complexity of the following flow chart. Verify your answer using Graph matrix theory. 	5	
2.	*a)*	**Demonstrate** characteristics of a good software design with examples.	5	**CLO-2** *C3*
	b)	**Illustrate** the different phases or activities of Software project management.	5	
	c)	**Demonstrate** the seven principles of risk management in software engineering briefly and provide real-life examples to illustrate each one.	5	
3.	*a)*	**Discuss** various techniques of software cost estimation briefly.	5	**CLO3** *C2*
	b)	Consider a software project for a hospital management system. The software is designed to manage patient records, appointments, and billing. The major software functions identified are: • Patient registration • Appointment scheduling • Billing and invoicing Kawsher HRidoy For patient registration: S_{opt}: 2500, S_m: 3500, S_{pess}: 5500 For appointment scheduling: S_{opt}: 4200, S_m: 6300, S_{pess}: 8400 For billing and invoicing: S_{opt}: 1800, S_m: 2400, S_{pess}: 4800	5	

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		In this software project, the productivity rate is estimated at 4000 lines of code (LOC) per person-month, and the development cost is $6000 per person-month. **Estimate** the following: i. Person required per month. — 1.69 ii. Total cost of the software development. — 9840 iii. Cost per LOC. — 2.46 $		
	c)	Consider the following project schedule with activity labels, durations (in weeks), and their respective precedents: **Activity** / **Duration (weeks)** / **Precedents** A / 7 / - B / 5 / - C / 3 / A D / 6 / A, B E / 4 / B, C F / 9 / A G / 4 / E, F H / 3 / D, G Apply the critical path method to find the critical path and the activities involved. **Estimate** the earliest start time (ES), earliest finish time (EF), latest start time (LS), latest finish time (LF), and also identify the critical path.	5	

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