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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Final Semester Examination, Fall 2024

Course Code: CSE227, Course Title: System Analysis and Design

Level: 2 Term: 2 Batch: 64

Time: 2:00 Hrs **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.]

	You are assigned to test a **"Comprehensive Scholarship Application Process"** for a university. The scholarship application is available to both undergraduate and graduate students, with unique requirements based on the type of scholarship. The system must validate applicant information, manage multiple scholarship applications, and generate automatic status updates. The application process must involves the following features and rules:			**CO3**

Task No.	Task	Requirements	Dependency	Duration
1	Project Planning and Requirements Gathering	Define system requirements, establish timelines, and allocate resources.	None	4 weeks
2	Personal Information Management	Collect Full Name, Student ID, Program of Study (Undergraduate/Graduate), Date of Birth (age 18+).	Follows Project Planning and Requirement Gathering	3 weeks
3	Academic Information Validation	Validate CGPA (Undergraduate: 2.5–4.0; Graduate: 3.0–4.0).	Follows Personal Information Management	4 weeks
4	Scholarship Selection and Application Management	Enable selection and management of Merit-Based, Need-Based, or Research-Based scholarships.	Follows Academic Information Validation and Personal Information Management	3 weeks

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	5	User Interface Design and Prototyping	Design and test user-friendly forms for applicants; prototype interface for user feedback.	Follows Scholarship Selection and Application Management	4 weeks		
	6	Database Design	Design and implement database to store applicant information, academic records, and scholarship data.	Follows User Interface Design and Prototyping	3 weeks		
	7	System Testing and Validation	Conduct end-to-end testing across modules to ensure functionality and compliance with application rules.	Follows User Interface Design and Database Design	4 weeks		
	8	Deployment and Training	Deploy the system, train staff on usage, and provide documentation.	Follows System Testing and Validation	3 weeks		
	a) Construct a Gantt chart and activity network based on the information in the above scenario.					[6]	
	b) Determine critical path and critical values of the activity network.					[3]	
	c) Determine Early Start, Early finish, Late start and Late finish time of all activities.					[4]	
	d) Determine slack time of these activities.					[2]	
	e) Design a scholarship application form containing essential information for the scenario mentioned above.					[5]	CO2
	f) Design manual test cases to check eligibility to apply in the context of age and academic information.					[5]	
2.	A B2C E-commerce platform named "**EBUY**" that does commercial activity between companies and consumers. The maintenance company of "EBUY" wants to hire a digital marketing expert.						CO2
	a) Explain how digital marketing can be performed for this platform.					[5]	
	b) Determine the E-commerce system vulnerabilities and challenges and provide security measures in the context of network and data security.					[5]	
3.	Analyze how quality of a software can be assured through reviews and inspection.					[5]	CO3