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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Final Examination, Summer 2026

Course Code: CSE326, Course Title: Social and Professional Issues in Computing

Level:4 Batch:65

Time: 02:00 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.]

1	a)	A hospital uses software to monitor patient health. Due to a software error, the system shows incorrect patient data.		CO3
		Identify the possible risks and impacts of this failure on users.	04	
	b)	As a developer, what software development strategies would you apply to prevent such failures?	06	
2		A government scholarship board introduces an AI-based system to automate the scholarship selection process. The system is trained using historical application data collected over the past ten years. After implementation, it is observed that applicants from rural areas are selected much less frequently than applicants from urban areas, despite having similar academic achievements and financial needs. A review of the system finds that the historical training data contained a much larger number of urban applicants than rural applicants, leading the AI to produce biased recommendations.		CO3
		Explain why this AI system is considered discriminatory. Describe at least three methods to manage fairness and non-discrimination risks in this situation.	05	
3		A mobile health application collects users' personal information, including their age, medical history, and location, to provide personalized health recommendations. Although the app's privacy policy mentions that data may be shared with third-party advertisers, this information is buried in a lengthy document that most users do not read. Later, users begin receiving advertisements based on their medical conditions and discover that their data has been shared without their clear understanding.		CO2
		Identify the ethical issues in this scenario. Discuss the responsibilities of the company and suggest ethical practices that should have been followed.	05	
4	a)	A printing company that is close to campus offers low-cost copies of high-priced books and sells them at a discount to students. The shop owner says that the original are too expensive for students and that this makes education more accessible books.		CO4
		Identify which type of intellectual property is being infringed and why this is different to a student copying a few pages for their own study.	05	

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	b)	Compare an argument in favor of ,or against the shop owner's justification, balancing the rights of authors and publishers with the ability to access educational materials.	05	
5	a)	You are the Network Administrator of a multinational software company responsible for maintaining employee computers, network infrastructure, and sensitive organizational data. One morning, the manager of the Finance Department contacts you with an urgent request. A senior accountant has been on extended medical leave for several weeks due to a serious illness. The manager explains that several financial reports and spreadsheets stored on the employee's office computer are required immediately to meet an important government audit deadline. The manager instructs you to copy all files from the employee's computer and transfer them to the department. However, the manager provides no written approval from Human Resources (HR), senior management, or the organization's information security office. Company policy states that employee files may only be accessed under exceptional circumstances with proper authorization and documentation. You know that the employee's computer may contain confidential financial records, personal emails, private documents, and medical information. Refusing the manager's request could delay the audit, while complying without authorization may violate company policy, employee privacy, and professional ethical standards. From the above scenario:		CO4
		Analyze the rights and responsibilities of the stakeholders involved (e.g., employee, department manager, company, HR, clients, auditor, and network administrator)	05	
	b)	You are a Software Engineer working for a company developing an AI-based railway signaling and train-routing system. The software automatically controls railway switches, assigns train routes, and prevents collisions by processing real-time sensor data. During the final system testing phase, you discover a programming defect. Under rare conditions, the AI algorithm may incorrectly route a train onto an occupied track. Although the probability of failure is estimated to be very low, the consequence could include train collisions, passenger injuries, loss of life, and major property damage. When you report the issue to your project supervisor, the supervisor states that fixing the bug would delay delivery by several weeks and could result in financial penalties and loss of the government contract. The supervisor instructs you not to disclose the defect, arguing that "the chance of failure is almost zero" and that the issue can be corrected in a future software update. You are now faced with deciding whether to remain silent, follow your supervisor's instructions, or report the issue through appropriate organizational channels	05	CO4
		From the above scenario: Evaluate ethical dilemmas and recommend appropriate professional decisions by applying ethical principles, professional codes, and public safety considerations.		