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Daffodil International University

Department of Computer Science and Engineering

Course Code: CSE112 Course Title: Computer Fundamentals Section: 70_M
Semester: Fall-2025 Quiz:01 Course Teacher: MHS
Name : Student ID:

Time: 30 Minutes [Answer All the following questions] Full Marks: 15

Q1. You are working for an email service provider that wants to automatically detect and move spam emails into a separate folder. To achieve this, your team trains a computer model using thousands of past emails labeled as either "spam" or "not spam.

Explain which type of machine learning is being applied in this case and describe why this method is suitable for the problem. **[5]**

Q2. In a robotics lab, an engineer is developing a robot that must learn to navigate through a room full of obstacles. The robot receives a positive score whenever it successfully avoids an obstacle and a negative score when it collides. Over time, it learns the best way to move through the room.

Identify the type of machine learning being used here. Discuss the role of the "reward" in this learning process and how it helps the robot improve its performance. **[5]**

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Q3. A financial institution develops an AI system to approve or reject loan applications. After deployment, the bank realizes that the system rejects a higher percentage of applications from a particular ethnic group compared to others, even when their financial conditions are similar.

Discuss which ethical issue this situation represents. What could have caused this bias, and what steps should the organization take to ensure fairness in future AI systems? **[5]**

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