Department of Computer Science and Engineering
University of Barishal

3rd Year 1st Semester, 2nd Midterm Exam, Session: 2021-22

Course Code: CSE 3103, Course Title: Software Engineering & Information System Design

Time: 30 minutes **Marks: 20**

Answer any TWO questions from the followings.

A bookstore plans to develop a Book Store Management System (BSMS) to streamline both in store and online operations. The system will allow customers to browse books, search by title, author, or category, view detailed information, add selected books to a shopping cart, place orders, make online payments, and track their order status from placement to delivery. Customers will also be able to submit reviews and feedback on purchased books. Store employees will use the system to manage daily tasks such as adding new books to the catalog, updating stock quantities, processing customer orders by confirming, packing, and shipping them, handling complaints, and managing returns or refunds. The system will maintain several key data stores, including customer profiles, book catalog details, supplier information, order histories, payment records, and inventory levels. The BSMS is expected to efficiently support workflows such as order processing, inventory restocking, supplier management, and return or refund operations, ensuring smooth interaction between customers, employees, and administrators.

1. a) Identify any five major use cases for the BSMS from the perspective of different actors. [10]
   b) Draw a Use Case Diagram showing the actors and their interactions with the system.
2. Prepare class-based modeling for the Book Store Management System by identifying potential classes using proper selection criteria, creating class cards with attributes and operations, and drawing the corresponding class diagram. [10]
3. What is a Data Flow Diagram (DFD)? Explain its purpose in requirements modeling and draw DFD up to Level-2 for the BSMS showing major processes, data stores, and external entities. [10]
4. a) Develop a detailed Sequence Diagram for the BSMS that depicts the interaction among the Customer, System, Payment Service, and Store Employee during the complete online book ordering process, covering steps such as book selection, adding to cart, order placement, payment verification, order confirmation, and notification. [10]
   b) Prepare a comprehensive State Transition Diagram for the Order Lifecycle in the BSMS, illustrating all major states and the transitions triggered by user actions or system events.