**Case Study:**

Inventory Management System is necessary for businesses ranging from large to small organizations. Inventory is the goods or the material that the businesses have to achieve their goals.  The Inventory management system holds the details of all the employees who are working in an organization. It allows the user to manage and maintain an inventory with ease. It allows the admin to manage users, hold their details, authenticate these users at the time of login, and accordingly provide different options. It holds the details of all the godowns which are part of the organization. It keeps the details of all Product Stocks held in the warehouse of the company. The system allows the godown manager to manage various inwards entries related to their godown. Whenever an inwards entry is entered then accordingly the stock number will be automatically updated. This system includes various forms for inventory inwards and outwards entries. Managers can create sub inventories by using this system. The primary users of this system such as managers can view the list of inward and outward entries. More precisely, the inventory management system allows its users to add an inventory, delete an inventory, enter inventory quantity and other details, update inventory status, and more. The inventory management system has its own intelligently managed support system that allows users to view and manage various inventories added to the system. This system can also generate reports for inventory, customers, receiving stock, suppliers, and daily transactions.

**Use case 1: Add new Products to inventory**

Actors: Inventory Manager

Description: Inventory Manager will be prompted with a menu screen. He selects the 'Products' menu item. The system displays a form with various product information fields. The manager enters the information asked information such as internal name, product Id is auto-generated if not filled, category, introduction date, release date, inventory, rate, and measures. The system successfully creates the product.

**Use case 2: Backordered products Received**

Actors: Inventory Manager

Description: This Use Case describes what happens when a shipment of products is received for which the company has back orders. The use case starts when the Inventory system is notified that backordered products have been received. The system finds all orders marked backorders, and changes their status to confirm. For each item marked backordered, clear its state.

**Question #1.** Draw a Domain Model of the above case study. Clearly identify the conceptual classes, their attributes and relationships between them. (20 marks)

**Question #2.** Draw a System Sequence Diagram (SSD) of the two use cases. (10 marks)

**Question #3.** Draw a Sequence Diagrams of system events from the two SSDs designed in question#2. Please make sure that the design decision should be taken by considering the GRASP patterns.

(20 marks)