COMSATS UNIVERSITY ISLAMABAD

ABBOTTABAD CAMPUS

MID TERM LAB

NAME: MUHAMMAD SHAYAN MUGHAL

REG NO: SP23-BSE-050

CLASS: BSE-5B

SUBJECT: SDA

TOPIC: Diagrams

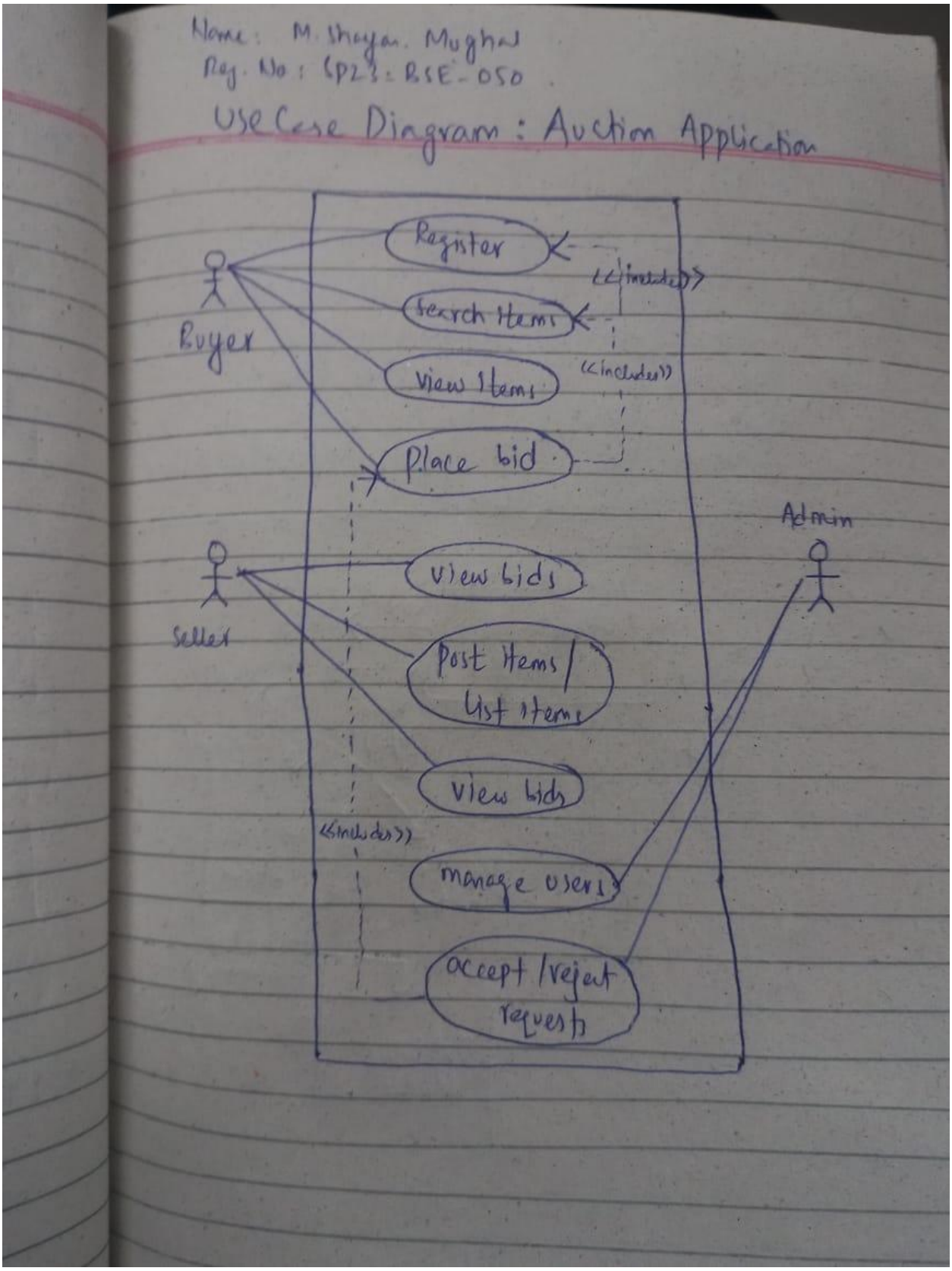
SUBMITTED TO: Mr. Mukhtiar Zamin

Q1. Draw a USE CASE Diagram on the Page with your Name and Registration number on it. [10 Minutes, 5 Marks]

I began by designing a Use Case Diagram for the *Auction Application* system. This diagram highlights the core functionalities of the system and the interactions between users (such as bidders and auctioneers) and the system itself. One of the key use cases identified was "Place Bid."

Q2. Pick one business use case from the diagram for implementation. Mention the name of principles/pattern that will help you in its implementation. [5 mins, 3 Marks] Design one System Event on the Page using communication diagram along with your name and registration number. [10 mins, 5 Marks]

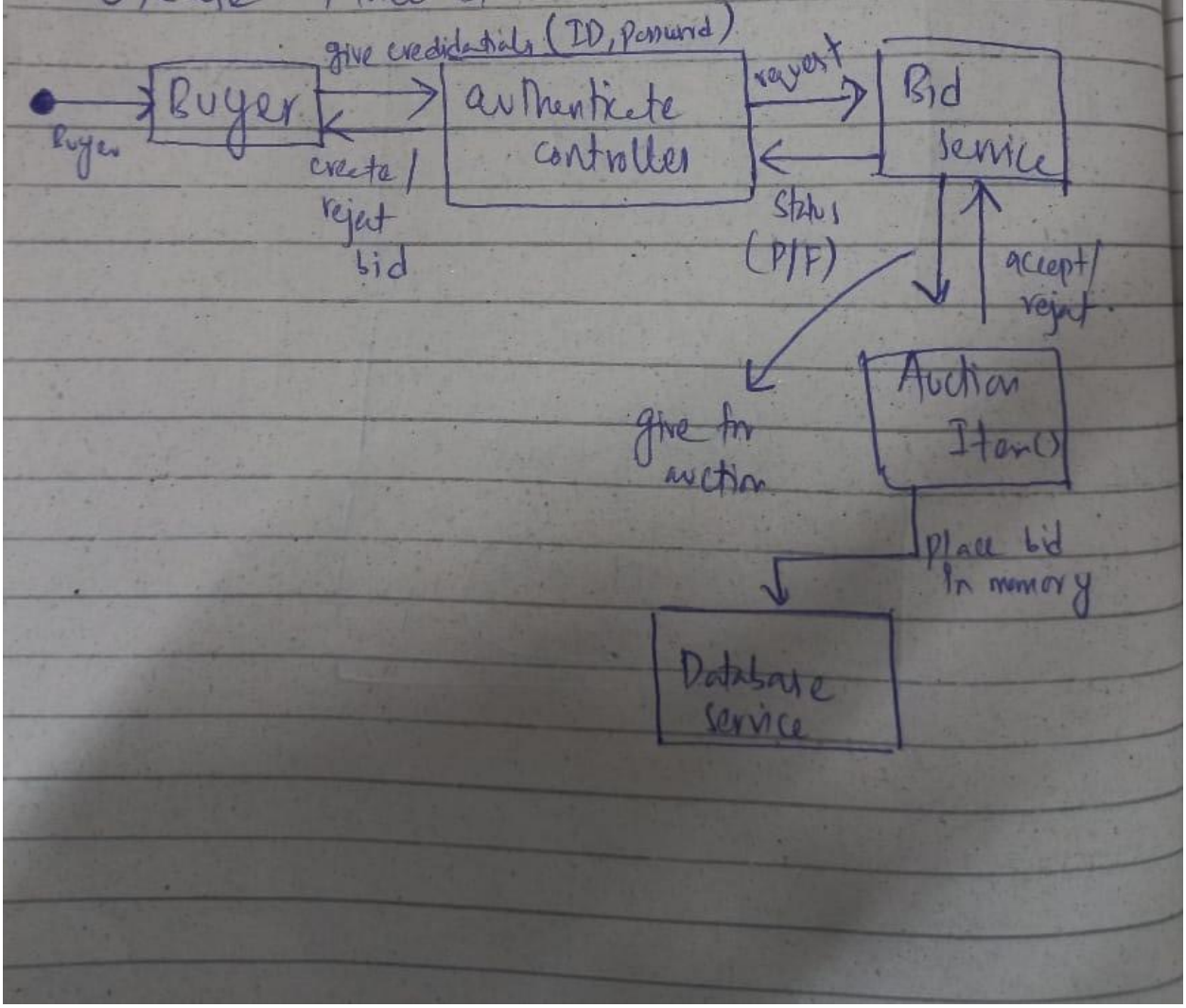
To further elaborate on the "Place Bid" functionality, I developed a Communication Diagram for this use case. This diagram shows how different objects in the system interact with each other through message exchanges when a bid is placed. I implemented the **Observer Pattern** to model the real-time update mechanism—when a user places a bid, all observers (e.g., other bidders or auction interfaces) are automatically notified of the new bid, ensuring synchronization and consistency across the system.


Name: M. Shayan. Mughal
Reg. No: SP23-BSE-050
Use Case Diagram: Auction Application
Register
Search Items
View Items
Place bid
Buyer
<<include>>
<<includes>>
Admin
View bids
Seller
Post Items / List Items
View bids
<<includes>>
manage users
accept / reject requests

Communication Diagram.

Design patterns used can be Observer Pattern, and Singleton pattern as well. Observer pattern will be used because the system needs to inform about the bids to all users. But I'll use observer pattern as well as singleton.

Usecase: Place Bid



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