**ASSIGNMENT**

**OBJECT ORIENTED ANALYSIS AND DESIGN**

**Question 1**

**Analyze the following scenario and answer the questions below.**

*The schedule of classes for each term is produced in advance of the pre-registration date according to a* time table prepared by the Records Office. By a date contained in the time table, each department in the University must submit a list of classes scheduled for the term in question. These lists are combined to form a printed class schedule. The schedule is distributed free for each department office and to each professor; students must buy theirs at the bookstore. During the pre-registration period, students request the classes they would like to take, using a touch-tone telephone. Each class request contains the student’s identifier and the identifier of the class for which the student wishes to register. If that class is not available, the student may try to enroll in a different section of the same course or in another class. After a student has registered for a many class as possible (up to the maximum number of units permitted), a class list is printed for that student. It shows the class in which the student has been enrolled. A class roster, containing a list of the students’ names and identifier, is printed for the professor teaching each class. The list is ordered alphabetically by the students’ last name.

1. Draw the class diagram (5 Marks)
2. Draw the sequence diagram (5 Marks)
3. Briefly discuss the Unified modeling methodology indicating the deliverables at every stage. ( 6 Marks)
4. Develop usability test plans and test cases for the above case (6 marks)

**Question 2**

Read through the following extract and answer the questions that follow

The Kabarak university is in the process of developing a course ware management system. You have been approached as the architect and assigned the task of constructing the design elements for a system that can be used to manage courses/classes for the university. The university offers a variety of courses in a variety of areas such as learning management techniques and understanding different software languages and technologies. Each course is made up of a set of topics. Tutors in the organization are assigned courses to teach according to their area of specialization and the availability. The university publishes and maintains a calendar for the different courses and the assigned tutors every year. There is a group of course administrators on the university in the university who manage the courses including course content, assign courses to tutors and define a course schedule. The university aims to use the course ware management system to get a better control and visibility to the management of courses and also to stream line the process of generating and managing the schedule of different courses. Students can view and take courses.

1. Identify the following from the extract above
2. Actors (5 Marks)
3. Use cases (5 Marks)
4. Draw a use case diagram of the course ware management system. (5 Marks)
5. Discuss any four design objectives in object oriented analysis and design (4 marks)
6. What is a case tool? (1 mark)

Question 3

1. Explain with illustrative examples. How does the requirement elicitation process happen in object oriented analysis? (5 marks)
2. Describe the difference type of object oriented models (6 marks )

Question 4

Examine the following case

Quest Entertainment Company (QEC) has an automated ticketing system. QEC has various venues like movie theaters, sports grounds and open air theaters etc. This ticketing system uses computer processing and large databases to manage the distribution of tickets to entertainment and sporting events. Customers can buy their tickets from many locations, including the box office at the event site, railway stations, bus terminus, and authorized retail locations. In some instances online point-of-sale terminals are used to record the transaction and print the ticket, while at other locations the transaction is recorded and the customer receives the ticket by mail. The system maintains a master house calendar for the events. When a request is made, the system is designed to determine automatically whether the performance requested by the customer event and date is actually scheduled, sometimes customers have misinformation about the dates and time of event. In this case system will suggest alternate events on the same date or different dates for the requested performance.

Once the customer selects a date and event, the system next assigns seats from its master-seating chart. As seats are given, the master chart is updated to indicate the availability of seats. Ticket prices vary according to the event, time, and location within the theater or sport complex. They may also vary according to the type of category, for example, for senior citizens tickets to be priced lower than others. Some events also provide student discounts for tickets; they may be complete event booking or group booking also. Some tickets are distributed on a complementary basis by the management-perhaps to event sponsors. Even in these situations manager must request tickets through the system. A record of all sales transactions including the origin and date of the transaction, the name of identification number of the seller and the event details, such as the price and category of the ticket is automatically accumulated within the system. The record is used in auditing payments and sales.

1. Draw a class diagram for the case study(6 marks )
2. Draw activity diagram for the case (5 marks )
3. Explain how does Encapsulation and Abstraction concepts work together in object orientation? In reference to this case (6 marks)