Indian Institute of Information Technology Vadodara

B. Tech (CSE/IT) Semester III (Autumn 2021-22)

Examination: End Semester Examination (Remote Session)

Course ID: CS 201

Course name: Object Oriented Design and Programming

Full Marks: 60

Date: 05.01.2022

Exam Slot: 10:45 – 11:45

Exam Duration: 60 minutes

Scan & Upload: 11:45 – 12:00

Instructions

1. **Attempt ALL questions**.

2. Use a Notebook to write the answers to Remote session test.

3. Answer all questions in the same Notebook. Answers should be in Order.

4. Answers should be readable, else they may not be considered for grading.

5. All answered pages should be scanned properly. Please check the scanned copy before submitting.

6. The final PDF uploaded should contain all pages sequentially arranged.

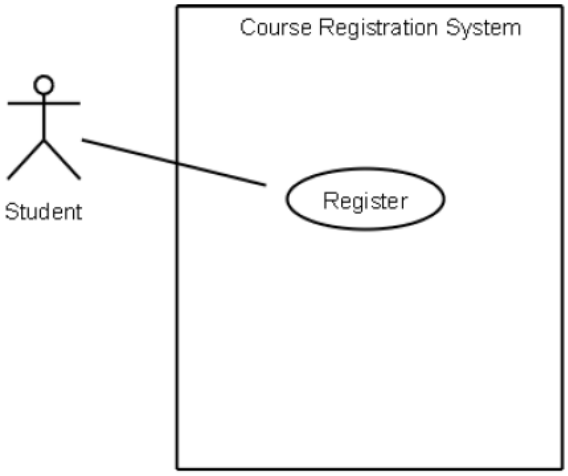
7. The uploaded PDF file should be renamed as **courseid_rollno.pdf**.

8. Late submission is not allowed, and would be penalized during grading.

ATTEMPT ALL TWO QUESTIONS

Q.1. Diagram: Consider the following piece of text

An academic institute is in a process of installing a login-authenticated *Course Registration System* for the various undergraduate programs run by the various departments of the institute. The system is administered by a *course coordinator* who should be a faculty of some department. Before the start of a semester, the faculties of different departments offer various courses that they intend to undertake along with credits, prerequisites, and the (preferred) weekly schedules. At some specified duration, the students of the institute, depending on the credit requirements and interest, register for these courses. After the deadline, the course registration process is ended by the course coordinator, and various reports along with time tables are generated for the semester.



An incomplete use case diagram for the system is given above. Develop the following Documents

(a) Complete the use case diagram for the above problem text. **[15 marks]**

(b) Specify use case documentation for “Register" use case. **[15 marks]**

Q.2. Programming:

(a) Define a **Question** class, which stores a multiple-choice question having one correct answer. Each question has a complexity (difficulty) level.

Use the **Question** class to define a **Quiz** class. A quiz can be composed of up to 10 questions. Define the add method of the Quiz class to add a question to a quiz.

Define the **giveQuiz** method of the **Quiz** class to present each question in turn to the user, accept an answer for each one, and keep track of the results.

Define a class called **QuizTime** with a **main()** method that follows a menu based approach to populates a quiz, presents it by asking questions randomly, and prints the final results.

[20 Marks]

(b) Modify your program so that the complexity level of the questions given in the quiz is taken into account.

Overload the **giveQuiz** method so that it accepts two integer parameters that specify the minimum and maximum complexity levels for the quiz questions and only presents questions in that complexity range.

Modify the **main()** method to demonstrate this feature.

[10 Marks]