Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M. TECH (MSS)/SEM-2/MMS-201/2012

2012
OBJECT ORIENTED SOFTWARE DESIGN

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions :   5 × 14 = 70

1.   What are the steps to construct an object model from a requirement statement ? Study the following requirement statement and construct its object model.

   "Library activities are to be computerized. Books are issued to members. Reference books can be handled by faculties only. Students can keep at most two books with them. For late return of the books students are charged fine. All the transactions are to be noted into the register. For any transaction members will have to specify member number, name, book accession number etc. in a form."   4 + 10

2.   Consider the statement : "The Unified Modeling Language (UML) is a language for visualizing, specifying, constructing, and documenting the artifices of a software-intensive process. It is the standard language for software blueprint." Make critical comments on the statement.

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3. What is a 'Use Case' and what is its importance in the UML model of a software ? Describe a method to identify the use cases of a software system. Identify the use cases of an online e-learning system and draw the corresponding use case diagram.

Differentiate between forward engineering and reverse engineering. State the steps to forward engineer and to reverse engineer a use case diagram. $(2 + 2 + 1 + 3) + 2 + 4$

4. Compare and contract between sequence diagram and collaboration diagram. Draw the sequence diagram and then the collaboration diagram, for initiation of a simple two-party telephone call. Show the distinctive elements of the said diagrams. $4 + 5 + 5$

5. Briefly explain the following terms with proper examples :

   i) Activity diagram

   ii) Swimlanes

   iii) Object flow.

   Consider an ordering and supplying (till the closing of the ordering) system where the agents/entities involved in the process are – the customer, the sales department, the warehouse etc. Show the object flow along with the activity diagram for the system. $2 + 2 + 2 + 2 + 6$
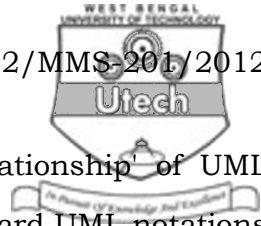
6. Briefly describe the 'things' and the 'relationship' of UML with illustrative examples. Show the standard UML notations for them.

7. What do you mean by a normal scenario and an exceptional scenario ? Describe a normal scenario for making an online railway reservation. Convert the scenario to a suitable event trace. Make an exception to the normal scenario and write the corresponding scenario with exception.

8. Write short notes on any *two* of the following :   7 + 7

   i) Desirable qualities of software systems

   ii) Class diagrams

   iii) Statechart diagrams.

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