

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

December, 2016

BICSE-010 : DATA MODELLING AND UML

Time : 3 hours

Maximum Marks : 70

Note : Answer any seven questions. All questions carry equal marks. Assume suitable missing data, if any.

1. (a) What does 'UML' stand for ? List the models, unified to contribute UML. Among the identified models, contributing to UML, which model is the most important ? Justify your answer. 5
- (b) Describe the term Dynamic model. Discuss the diagrams drawn for Dynamic modelling. 5
2. (a) What are Use Case diagrams ? Discuss various notations involved in the use case diagrams. What is the utility of use case diagrams in UML ? 5
- (b) Draw an Instance diagram for the expression $(A + B/2) * (A/3 + B)$. 5

3. (a) What is the usage of a Class diagram ?
What is the difference between Abstract class and Concrete class ? Discuss the notations used in a Class diagram ? 5
- (b) Draw a State transition diagram for the game of chess. Briefly discuss each notation used in the State diagram. 5
4. (a) What do you understand by the term Association in UML ? Briefly discuss the types of Associations used in data modelling. 5
- (b) Discuss the concept of Role names, with the help of suitable examples. 5
5. (a) Differentiate between the following : 5
- (i) Generalization and Specialization
 - (ii) Aggregation and Generalization
- (b) Write short notes on any *two* of the following : 5
- (i) Functional Model
 - (ii) Include Relationships
 - (iii) Event Classes

6. (a) Discuss the components of a Data Flow Diagram (DFD). Draw a DFD for the performing division operation. 5
- (b) List the components of an Event trace diagram. Draw an Event trace diagram for ATM transaction. 5
7. (a) Explain the term Aggregation Concurrency with the help of a suitable state diagram. 5
- (b) Discuss the concept of object oriented designing. Under what conditions can we say that the design is good or bad? 5
8. Write short notes on any *four* of the following : $4 \times 2 \frac{1}{2} = 10$
- (a) Extend Relationships
- (b) Event Classes
- (c) Falsification
- (d) Association Class
- (e) Basic Concept of UML
9. (a) What are Activity diagrams ? Discuss the various notations used to draw Activity diagrams with the help of suitable examples. 5
- (b) What are Sequence diagrams ? Discuss the notations used to draw sequence diagrams. Give suitable examples. 5

10. (a) How does object oriented modelling differ from structured modelling ? Discuss the advantages and disadvantages of one over the other approach. 5
- (b) Write short notes on the following :
- (i) Object Oriented Analysis
 - (ii) Object Oriented Design
- Give suitable examples for each. 5
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