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No. of Printed Pages : 3 **BICSE-010**

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

Term-End Examination

December, 2015

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) Why is model required in analysis and design ? What is the role of UML in preparing a model ? List the types of models and their purpose. 5

(b) Define the purpose of the following terms with suitable examples and UML notations with respect to class model : 5

(i) Qualified association

(ii) Association class

(iii) Aggregation

(iv) Multiplicity

(v) Constraint

2. (a) Define UML. List any five diagrams which are supported by UML. 5

(b) The class diagram shows the relationship among classes. Define four types of relationships in class diagram. 5

3. (a) What is concurrency ? Explain 'aggregation concurrency' and 'concurrency within an object' represented by a state model with suitable example. 5

(b) Explain the purpose of an activity diagram. In which situation is an activity diagram not necessary ? 5

4. (a) What is the use of "include" and "extends" relationships in use-case diagram ? Draw the use-case diagram for online admission process for State Engineering students. 5

(b) Draw a state chart diagram for dialling a telephone number. 5

5. (a) Why is object oriented modelling necessary ? Explain. 5

(b) How are event classes constructed ? Explain with suitable examples. 5

6. (a) What is software development process ? List the steps of software development process. Differentiate between iterative process model and waterfall model. 5

(b) Why is software architecture so important in system design ? List and briefly explain the different architectural styles. 5

7. (a) Define "falsification" and "prototyping" 5

(b) What do you mean by a model ? Explain the various purposes of modelling. 5

8. (a) Define Scenario, Sequence diagram. Explain with suitable diagrams. *5*

(b) Define Event, State and Transition with the help of a State diagram. *5*

9. (a) Describe Abstract Data Type (ADT). *5*

(b) Define "Solution Domain" in object oriented modelling approach. *5*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Events and Messages

(b) The Function Model

(c) Prototyping