R10

Set No. 1

IV B.Tech I Semester Regular/Supplementary Examinations, Nov/Dec - 2015
UML AND DESIGN PATTERNS
(Computer Science and Engineering)

Time: 3 hours   Max. Marks: 75
Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) What is the need of modeling software system? What are object oriented
       concepts used in software modeling and how?   [8]
   b)   Explain various phases of Software development Life cycle.   [7]

2 a) What does associations in class diagram mean? Explain aggregation and
       composition in class diagrams   [8]
   b) Explain with examples the process of designing methods and protocols.   [7]

3 a) How does a simple use case look like? Explain 'Extend' and 'Include' in use
       cases.   [7]
   b) Give the activity diagram for computation of percentage of marks and report
       card generation in an assessment system. State you assumptions.   [8]

4   Briefly explain about the common modeling techniques for component and
       deployment diagrams.   [15]

5 a) Briefly explain about the MVC architecture.   [8]
   b) How do design patterns solve design problems? What are the five errors of
       using design patterns?   [7]

6   What are the three key strategies in the Abstract Factory? What does the
       "Abstract Factory" class do?   [15]

7 a) The Façade pattern and the Adapter pattern may seem similar. What is the
       essential difference between the two? Explain with suitable examples.   [7]
   b) What is the basic problem being solved by the Bridge pattern? How is
       implementation defined in the context of the Bridge pattern?   [8]

8   List and explain about various behavioral patterns. Describe their selection
       criteria.   [15]

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Set No. 2

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Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
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1 a) How does the object oriented approach differ from the traditional top down approach? Explain with examples.   [8]

   b) What is modeling? Give the importance of modeling in designing a system.   [7]

2 a) What are composite structure diagram and reflexive association in class diagrams? Explain them   [8]

   b) Explain with examples the process of designing classes.   [7]

3 a) Give the use case diagram for sports event management system with descriptions of use case and actors identified.   [7]

   b) How interaction overview diagram is related to activity diagram? Give an example.   [8]

4 a) Explain elements and purpose of a component diagram.   [8]

   b) How do you model the deployment view in UML?   [7]

5 a) What is a design pattern? How to select a design pattern?   [8]

   b) What is the relationship between "consequence" and "forces" in a pattern? Explain with an example.   [7]

6   List and explain various creational patterns along with their features.   [15]

7 a) In the Façade pattern, how do clients work with subsystems? Does the Façade pattern usually gives you access to the entire system?   [7]

   b) What is open-closed principle? In what way does the Bridge pattern illustrate the open-closed principle?   [8]

8 a) Discuss about the Mediator Pattern.   [8]

   b) Give the solution for observer design pattern.   [7]

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Set No. 3

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UML AND DESIGN PATTERNS
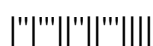**(Computer Science and Engineering)**

Time: 3 hours   **Max. Marks: 75**
Answer any FIVE Questions
All Questions carry equal marks
*****

1   Discuss in detail various object oriented concepts with example.   [15]

2   a)   How do we represent private, public and protected in class diagrams?   [8]

    b)   Give the class diagram for online store management system.   [7]

3   Explain the behavioural modeling with any two UML diagram.   [15]

4   a)   What are types of interfaces of a component? How it is modeled in UML?   [8]

    b)   Give the deployment diagram for client server 2 tier, event registration
         System.   [7]

5   a)   Define a pattern. What are the key elements in the description of a design
         pattern?   [7]

    b)   Explain the forward engineering and reverse engineering   [8]

6   a)   What are factories responsible for? What is the essential reason to use a
         Factory Method? Explain with an example.   [8]

    b)   What type of pattern is the Singleton? What general category of pattern does
         it belong to? How many objects is the Singleton responsible for creating?   [7]

7   a)   What is the intent of Façade pattern? What are the consequences of the
         Façade pattern? Give an example.   [7]

    b)   How does the Decorator pattern help to decompose the problem? What does
         each Decorator object wrap?   [8]

8   a)   The Template Method pattern makes the method call in a special way. What
         is that?   [7]

    b)   What is the difference between the Strategy pattern and the Template Method
         pattern?   [8]

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Time: 3 hours   **Max. Marks: 75**

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1 a) Explain the following special features of OO systems with examples: Inheritance, Encapsulation, Polymorphism   [8]
 b) Give the conceptual model of UML.   [7]

2 a) Explain the element of a class diagram with an example   [8]
 b) What do you mean by an active class? How class and object diagrams are realization and collaboration?   [7]

3 a) Why are uses and extends associations useful in use-case modeling? Explain with examples.   [7]
 b) Develop an activity diagram for an ATM application.   [8]

4 Discuss the UML deployment and component diagrams for a banking application.   [15]

5 a) What is a design pattern? How do you say that the given pattern is good?   [7]
 b) Give the Catalog of design patterns. How to use a design pattern?   [8]

6 a) Discuss the consequences and applications of Singleton pattern.   [7]
 b) Discuss about implementation issues in builder design pattern.   [8]

7 a) Which object-oriented concept is being used to define the relationship between Shape and Points, Lines, and Squares? What is the most common use for the Adapter pattern? Describe the variants of Adapter pattern.   [8]
 b) Explain the features of structural patterns in detail.   [7]

8 What is the structure & participants of Momento pattern and chain of Responsibility with one example   [15]