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17IS72

**Seventh Semester B.E. Degree Examination, Feb./Mar. 2022**  
**Software Architecture and Design Patterns**

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

**Module-1**

- 1 a. What is Design Patterns? List out the various templates used in Design Pattern and explain. (08 Marks)
- b. Demonstrate how key concepts of object oriented design are manipulated in design. (08 Marks)
- c. Explain different approaches to finding the design pattern that is right for your problem. (04 Marks)

**OR**

- 2 a. What is Delegation? Explain with a neat diagram window class delegating its area operation to a rectangle instance. (08 Marks)
- b. List out common causes of redesign along with design pattern that address them. (04 Marks)
- c. Explain other related concepts of object oriented design. (08 Marks)

**Module-2**

- 3 a. What are the rules of library system use case? (06 Marks)
- b. Explain the actions of use case Book checkout revised library system. (08 Marks)
- c. Describe the guidelines to remember when writing use cases. (06 Marks)

**OR**

- 4 a. How do you ensure that business rules related to use cases? (06 Marks)
- b. Describe the conceptual classes and their associations with all necessary UML diagrams. (08 Marks)
- c. What is domain analysis? Explain the concept of using the knowledge domain with an example. (06 Marks)

**Module-3**

- 5 a. What is decorator pattern? Explain motivation applicability, structure, participants and consequences of decorator pattern. (10 Marks)
- b. Demonstrate and what you understand from intent, motivation and applicability of proxy pattern with necessary sketches. (10 Marks)

**OR**

- 6 a. What is flyweight pattern? Explain the motivational concepts of flyweight pattern with necessary sketches. (10 Marks)
- b. Mention the applicability of façade pattern and describe sample code of façade pattern. (10 Marks)

**Module-4**

- 7 a. With a neat diagram describe about sequence of operations for adding a label in MVC object pattern. (10 Marks)
- b. Explain catering to multiple UI techniques and class explosion due to multiple UI implementations in MVC pattern. (10 Marks)

OR

- 8 a. Write the necessary coding related to implementation of model, view and controller, then justify the same. (10 Marks)
- b. How do you determine the tree structure formed by compound items and composite structure of the item hierarchy in MVC pattern? (10 Marks)

**Module-5**

- 9 a. Explain passing of remote objects as references in distributed systems. (06 Marks)
- b. Explain state transition diagram for logging in page. (06 Marks)
- c. Write a short notes on safe interactions and explain how servlets and HTML cooperate to serve web pages. (08 Marks)

OR

- 10 a. Explain the concept of directory structure for the servlets with suitable sketch and codes. (10 Marks)
- b. Explain with a neat diagram, state transition diagram of renewing books. (10 Marks)

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