CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ **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)**

* * * * *