CBCS SCHEME

USN | | | | | | | | | | **18CS731**

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. Define design pattern. Explain essential elements of design patterns. **(08 Marks)**
   b. Explain Delegation with an example. **(04 Marks)**
   c. Explain how to select and use a design pattern. **(08 Marks)**

OR

2 a. Explain the types of UML diagrams with example. **(10 Marks)**
   b. Explain usecase analysis and hence write the usecase for registering new member. **(10 Marks)**

Module-2

3 a. Define structural patterns. Explain applicability, structure and participants of adapter design pattern. **(10 Marks)**
   b. Explain motivation, applicability and structure of composite design pattern. **(10 Marks)**

OR

4 a. Explain motivation, applicability, structure and participants of façade design pattern. **(10 Marks)**
   b. Explain the issues to be considered when implementing the composite design pattern. **(06 Marks)**
   c. Mention few common situations in which proxy pattern is applicable. **(04 Marks)**

Module-3

5 a. Define behavioural patterns. Explain motivation, applicability and structure of chain of responsibility. **(10 Marks)**
   b. Explain motivation, applicability and implementation of interpreter design pattern. **(10 Marks)**

OR

6 a. Explain when to use memento, observer, state, command and mediator design pattern. **(10 Marks)**
   b. Explain Motivation, structure and implementation of iterator design pattern. **(10 Marks)**

Module-4

7 a. With a neat diagrams, explain MVC architecture and alternative view of the MVC architecture. **(08 Marks)**
   b. Draw and explain sequence diagram for adding line. **(05 Marks)**
   c. Define controller. Explain the steps involved in defining the controller. **(07 Marks)**

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

8 a. Explain use case for drawing a line.   (05 Marks)
   b. Explain the characteristics of architectural patterns.   (05 Marks)
   c. Explain implementing the undo operation.   (10 Marks)

Module-5

9 a. With a neat diagram, explain the basic architecture of client/server systems. (10 Marks)
   b. List and explain the steps to setup remote object system.   (10 Marks)

OR

10 a. Draw state transition diagram for logging into the system, adding book and issuing book and hence explain it.   (10 Marks)
   b. Draw and explain directory structure for servlet.   (05 Marks)
   c. Explain GET and POST methods.   (05 Marks)

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