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17IS72

Seventh Semester B.E. Degree Examination, Jan./Feb.2021
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 pattern? Differentiate between patterns and frameworks with suitable example. **(06 Marks)**

     b. Illustrate the step-by-step approach of applying a design pattern effectively with relevant examples. **(14 Marks)**

OR

2   a. What are the key concepts of object oriented design? **(04 Marks)**

     b. Illustrate how to maximize reusability of design patterns. **(04 Marks)**

     c. Explain the common causes of redesign and its design patterns for addressing them. **(12 Marks)**

Module-2

3   a. "The analysis needs to learn the existing system and the requirements". Justify. **(05 Marks)**

     b. Write a use case diagram for Book-checkout of a library system with business rules applied. **(07 Marks)**

     c. Describe the guidelines to remember when writing use-cases with suitable examples. **(08 Marks)**

OR

4   a. Briefly explain the major steps involved in designing a library system. **(10 Marks)**

     b. Describe the conceptual, software and implementation classes. **(06 Marks)**

     c. Draw a sequence diagram for registering a member. **(04 Marks)**

Module-3

5   a. Given problem context "Decouple an abstraction from its implementation so that the two can be varied independently". Illustrate your understanding with suitable examples. **(10 Marks)**

     b. Explain the structure and issues to be considered while implementing decorator pattern. **(10 Marks)**

OR

6   a. Demonstrate the structured and implementation of adapter pattern with suitable example and Java code. **(10 Marks)**

     b. Detail the issues to be considered while implementing composite pattern taking an example of computer or stereo components organized as part-whole hierarchies. **(10 Marks)**

Module-4

7   a. With neat diagram, explain MVC architecture and alternative view of MVC architecture. **(10 Marks)**

     b. What are the characteristics of architectural patterns? Explain three kinds patterns to be identified while creating software. **(10 Marks)**

OR

8 a. Draw and explain the sequence diagram for adding a label in a simple drawing program. (05 Marks)

b. Define the controller. Explain the steps involved in defining the controller. (08 Marks)

c. Explain the issues needed to be highlighted when implementing the UNDO operation. (07 Marks)

Module-5

9 a. Explain the advantages and disadvantages of distributed systems. (05 Marks)

b. Explain the client/server architecture in detail. (08 Marks)

c. How the library system can be deployed on the world-wide-web? (07 Marks)

OR

10 a. Briefly explain steps used to setup a remote object system. (14 Marks)

b. Explain Java Remote Method Invocation with suitable example. (06 Marks)

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