

CBCS SCHEME

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15IS72

Seventh Semester B.E. Degree Examination, June/July 2024 Software Architecture and Design Pattern

Time: 3 hrs

Max. Marks: 80

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

Module-1

- 1 a. What is design pattern? Explain essential elements of design patterns. (08 Marks)
- b. Define object oriented development. Explain key concepts of object oriented design. (08 Marks)

OR

- 2 a. Explain how to choose right design pattern for your problem. (08 Marks)
- b. Analyze step by step approach of applying a design pattern effectively. (08 Marks)

Module-2

- 3 a. Design the use case diagram of Library system and explain any two use case. (08 Marks)
- b. Define conceptual classes and relationships taking an example. (08 Marks)

OR

- 4 a. Explain the different questions need to be answered during design process. (06 Marks)
- b. Construct and explain the sequence diagram for returning books in Library System. (05 Marks)
- c. Briefly discuss Façade pattern with respect to design and implementation. (05 Marks)

Module-3

- 5 a. How classes and objects are composed to form larger structure? (04 Marks)
- b. Explain intent, Motivation, Applicability, Structure, Participants, Collaboration, Consequences and Implementation of Decorator Pattern. (08 Marks)
- c. Mention few common situations in which the Proxy pattern is applicable. (04 Marks)

OR

- 6 a. What do you mean by-part-whole hierarchies? Explain with suitable example. (06 Marks)
- b. Explain an object adapter and a class adapter. (04 Marks)
- c. What are the issues to consider when implementing the composite pattern? (06 Marks)

Module-4

- 7 a. With neat diagrams, explain MVC architecture and alternative view of the MVC architecture. (08 Marks)
- b. Explain the characteristics of architectural patterns in pattern based solutions. (08 Marks)

OR

- 8 a. Define the controller. Explain the steps involved in defining the controller. (08 Marks)
- b. With neat diagram, explain the design of the view subsystem. (08 Marks)

Module-5

- 9 a. What are distributed systems? Explain the basic architecture of client/server system. (08 Marks)
- b. List and explain the steps to setup Remote Object System. (08 Marks)

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OR

- 10 a. Draw and explain the State Transition Diagram for adding a book in Library System. (06 Marks)
- b. Draw and explain the Directory Structure for Servlets. (05 Marks)
- c. Write a short note on Input and Output. (05 Marks)
