



CBCS SCHEME

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15IS72

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 Software Architecture and Design Patterns

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? List out the four essential elements of pattern. (03 Marks)
b. Briefly explain the following pattern templates:
(i) Intent (ii) Motivation (iii) Structure (05 Marks)
(iv) Participants (v) Collaborations (08 Marks)
c. Explain the concept of organizing the catalog using purpose and scope of the pattern criteria. (08 Marks)

OR

- 2 a. What are the several approaches used to find the design pattern which addresses a particular design pattern.. problem? (05 Marks)
b. Once you have picked design pattern, what are the step by step approach to applying a design pattern effectively. (05 Marks)
c. Explain key concepts of object oriented design. (06 Marks)

Module-2

- 3 a. What is use case analysis? Mention its parties (use case). (03 Marks)
b. Define business process. Explain the business process of library system with essential steps. (08 Marks)
c. How do Business Rules related to use cases? Explain. (05 Marks)

OR

- 4 a. Explain four essential steps justifies the defining conceptual classes and relationships. (05 Marks)
b. What is domain analysis? Explain concept of finding right classes. (05 Marks)
c. Explain the role of following:
(i) Plan and elaborate phase
(ii) Usage modeling and its techniques (06 Marks)

Module-3

- 5 a. Define structural object pattern and describe the structure of adaptor pattern with necessary block diagram. (05 Marks)
b. List out the various consequences of adapter pattern. (05 Marks)
c. What is the intent of bridge pattern? Mention the various implementation issues applied for bridge pattern. (06 Marks)

OR

- 6 a. What is the intent of composite pattern? (02 Marks)
b. Explain the motivation and structure of decorator pattern with suitable examples. (07 Marks)
c. What is fly weight? Distinguish the intrinsic and extrinsic states of fly weight and describe the implementation part issues. (07 Marks)

Module-4

- 7 a. What you mean by MVC pattern? Mention the benefits of MVC pattern. (03 Marks)
b. With a suitable use case tables, explain analyzing a simple drawing program of MVC pattern. (08 Marks)
c. Explain sequence of operations for drawing a line using MVC pattern. (05 Marks)

OR

- 8 a. Explain the characteristics of architectural pattern and mention the three examples of architectural pattern. (05 Marks)
b. What is Rendering? Briefly explain designing of an item and subclass of model. (05 Marks)
c. Explain the basic structure of the view class during design of the view subsystem. (06 Marks)

Module-5

- 9 a. List out the advantages of distributed processing. (02 Marks)
b. What is client server system? Describe the basic architecture of client/server system. (06 Marks)
c. Explain implementing an object oriented system on the web with suitable example using HTML and Java servlets. (08 Marks)

OR

- 10 a. Explain state transition diagram for logging in of deploying the library system on WWW. (08 Marks)
b. Explain with necessary flow diagram directory structure for the servlets, of web base library system. (08 Marks)
