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18CS731

**Seventh Semester B.E. Degree Examination, June/July 2024**  
**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 a Design Pattern? List and explain the various templates used in Design Pattern. (08 Marks)
- b. List and explain the different classification of Design Pattern. (06 Marks)
- c. Explain the different Step – by – Step approach in applying a design pattern effectively. (06 Marks)

**OR**

- 2 a. Explain the two categories done in requirement analysis. Write the use case for Adding new books. (10 Marks)
- b. What are the problems faced in Use case for Book check? Write the rules used to rectify this problem and also write use case for revised Book check out. (10 Marks)

**Module-2**

- 3 a. When do you use structural patterns? Explain the applicability, structure and participants of Bridge design pattern. (10 Marks)
- b. Explain Motivation , Applicability and Structure of Decorator design pattern. (10 Marks)

**OR**

- 4 a. Explain Motivation , Applicability and Participants of Facade design pattern. (10 Marks)
- b. Explain Motivation , Applicability , Structure of Flyweight design pattern. (10 Marks)

**Module-3**

- 5 a. Define Behavioural design pattern. Explain Motivation , Applicability , Participants of Command design pattern. (10 Marks)
- b. Explain Motivation , Applicability and Implementation of Interpreter design pattern. (10 Marks)

**OR**

- 6 a. Explain Motivation , Applicability , Structure of a Mediator design pattern. (10 Marks)
- b. Explain Applicability , Participants and Collaborations of a Memento design pattern. (10 Marks)

**Module-4**

- 7 a. What is MVC Architecture pattern? Explain and list the benefits. (10 Marks)
- b. Explain Designing the system , Substance for an Interactive system. (10 Marks)

**OR**

- 8 a. Write and explain the code for Implementation of model , view and controller. (10 Marks)
- b. List the issues in context of implementing the Undo operation. (06 Marks)
- c. Write and explain the Sequence diagram for adding a line. (04 Marks)

**Module-5**

- 9 a. Explain the Client / Server architecture in detail. (10 Marks)  
b. Explain Implementing an Object – oriented system on the web. (06 Marks)  
c. Write a note on Input and Output in Java Servlet. (04 Marks)
- OR**
- 10 a. Briefly explain steps used to setup a Remote Object System. (14 Marks)  
b. Explain GET and POST methods. (06 Marks)

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