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17IS72

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023
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? Explain essential elements of design patterns. **(08 Marks)**
   b. Explain how design pattern help in specifying object implementations. **(08 Marks)**
   c. Differentiate between patterns and framework. **(04 Marks)**

OR

2 a. Describe the common causes of redesign along with the pattern that address them. **(10 Marks)**
   b. What is object oriented development? Explain the key concepts of OOD. **(10 Marks)**

Module-2

3 a. Draw neat use case diagram for library system, also explain register user use case. **(10 Marks)**
   b. Define conceptual classes and relationships taking an example. **(10 Marks)**

OR

4 a. Construct and explain the sequence diagram for renewing Books in Library System. **(10 Marks)**
   b. Explain the different questions need to be answered during process. **(10 Marks)**

Module-3

5 a. Define Structural Patterns. Explain in detail the adapter pattern. **(10 Marks)**
   b. Describe the motivation of composite pattern with neat diagram. **(10 Marks)**

OR

6 a. Explain the following with respect to the decorater pattern :
      i) Structure
      ii) Participants
      iii) Collaborations
      iv) Consequences. **(10 Marks)**
   b. Briefly illustrate the flyweight pattern in detail. **(10 Marks)**

Module-4

7 a. What is architectural pattern? Explain the MVC patter in detail. **(10 Marks)**
   b. Describe the process of designing the system in detail, taking a simple drawing program as example. **(10 Marks)**

OR

8 a. Explain he issues need to be highlighted, when implementing the undo operation. **(08 Marks)**
   b. What is pattern based solution? Explain the characteristics of architectural pattern. **(06 Marks)**
   c. Write short notes on Drawing incomplete items. **(06 Marks)**

Module-5

9 a. What are distributed systems? Explain the basic architecture of client/server system. **(10 Marks)**
   b. List and explain the steps to setup remote object system. **(10 Marks)**

OR

10 a. Draw and explain the state transition diagram for renewing book in library system. **(10 Marks)**
   b. Describe briefly about state transition diagram for logging **(10 Marks)**

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