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16/17MCA51

Fifth Semester MCA Degree Examination, Dec.2019/Jan.2020
Object Oriented Modeling 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 Object Orientation? Explain briefly the stages involved in Object Oriented Methodology. (10 Marks)
   b. Define the following terms with examples:
      (i) Object (ii) Class (iii) Behavior (iv) Operations (06 Marks)

2. a. What are links and association? Write and explain UML notations for links and associations with an example. (08 Marks)
   b. Discuss aggregation and generalisation with example. (08 Marks)

Module-2

3. a. What do you mean by state and events? Discuss the state diagram for a telephone line system with activities. (10 Marks)
   b. Discuss aggregation concurrency with state of a car as an aggregation of parts. (06 Marks)

4. a. Discuss the use-case diagram for vending machine. What are the guidelines needed to be followed for use-case models? (10 Marks)
   b. What are sequence models? Discuss the sequence diagram for a stock purchase. (06 Marks)

Module-3

5. a. Discuss the different stages in software development process. (10 Marks)
   b. List and explain questions that must be answered by a good system concept. (06 Marks)

6. a. List the steps to construct a domain class model for an ATM bank system, prepare data dictionary for all modeling elements. (12 Marks)
   b. How to construct an application class model? (04 Marks)

Module-4

7. a. Discuss how to construct application state model for ATM. (12 Marks)
   b. Explain the guidelines for Activity models. (04 Marks)

8. a. Discuss the steps to be followed for designing algorithms. (08 Marks)
   b. Explain the concept of Refactoring and Design optimization. (08 Marks)

Module-5

9. a. What are design patterns? Discuss structural, creational and behavioural design patterns. (12 Marks)
   b. Describe forward-receiver design pattern. (04 Marks)

10. a. Explain the concept of whole-part design pattern with a suitable example. (10 Marks)
    b. Discuss the concept of Architectural Pattern. (06 Marks)

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