

CBCS SCHEME

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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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. $42+8=50$, will be treated as malpractice.