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Seventh Semester B.E. Degree Examination, December 2010
Object Oriented Modeling and Design

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. What is object orientation? Explain briefly the stages involved in OO methodology. (10 Marks)
- b. Use illustrations and explain the following with UML notations:
 - i) Ordering the objects for an association end
 - ii) A multilevel inheritance hierarchy with instances. (10 Marks)
- 2 a. What is an event? Explain various kinds of events, using UML notations. (10 Marks)
- b. A simple digital watch has a display and two buttons, A and B to set it. The watch has two modes of operation, display time and set time. In the display time mode, the watch display hours and minutes, separated by a flashing colon. The set time mode has two sub modes, set hours and set minutes. The A button selects modes. Each time it is pressed, the mode advances in the sequence : display, set hours, set minutes, display etc. Within the submode, the B button advances the hours or minutes once each time it is pressed. Buttons must be released before they can generate another event. Prepare a state diagram of the watch. (10 Marks)
- 3 a. What is a nested state? Illustrate the importance and usage of aggregation concurrency, with the help of a state diagram. (10 Marks)
- b. Consider shopping in a physical bookstore of super market :
 - i) List three actors that are involved in the design of a checkout system. Explain the relevance of each actor.
 - ii) Take the perspective of a customer and list two use cases. Summarize the purpose of each use case within a sentence.
 - iii) Prepare a use case diagram for physical bookstore checkout system.
 - iv) Prepare a normal scenario for each use case. (10 Marks)
- 4 a. Explain the following development life cycle for software using OO approach:
 - i) Waterfall development
 - ii) Iterative development. (10 Marks)
- b. How are classes identified in a domain class model? Briefly explain. (04 Marks)
- c. For an ATM bank system, prepare a data dictionary for all modeling elements. (06 Marks)

PART – B

- 5 a. For an ATM system, prepare a normal scenario for process transaction and also give a sequence diagram for the process transaction scenario. (10 Marks)
- b. Name the three kinds of control for the external events in a software system. Also describe each control very briefly. (10 Marks)
- 6 a. What tasks are involved in the process of design optimization? Explain any one in detail. (10 Marks)
- b. Clearly distinguish between forward engineering and reverse engineering. (06 Marks)
- c. Write briefly on association traversal. (04 Marks)
- 7 a. What is a pattern? How is it categorised? Describe any one category, with an example. (10 Marks)
- b. Briefly discuss the structure of the client-dispatcher-server design pattern using CRC. (10 Marks)
- 8 a. Give an example design pattern for management of software system and explain briefly. (10 Marks)
- b. What are Idioms? How do they differ from design patterns? Explain the necessary steps for implementing the counted pointer Idiom. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, or any other mark, shall be treated as malpractice.

