USN | | | | | | | | | | | **10CS71**

Seventh Semester B.E. Degree Examination, June/July 2016
Object Oriented Modeling and Design

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. With an example, define a model. What purpose does it serve? Explain.   **(08 Marks)**
   b. With a neat diagram, explain a class model of windowing system.   **(08 Marks)**
   c. Explain qualified association with suitable example.   **(04 Marks)**

2 a. Explain the concept of work around with example.   **(06 Marks)**
   b. Fig.Q2(b) is a partially completed state diagram for the control of a telephone answering
      machine. The machine detects an incoming call after five rings and answers the call with a
      prerecorded announcement. When the announcement is complete, the machine records the
      caller's message. When the caller hangs up, the machine hangs up and shuts off. If someone
      answers the telephone before five rings, the machine should do nothing. Distinguish between
      calls in which the telephone is answered on the first ring and one call that rings five times.
      Draw and explain state model or diagram. Place the following in the diagram: call detect,
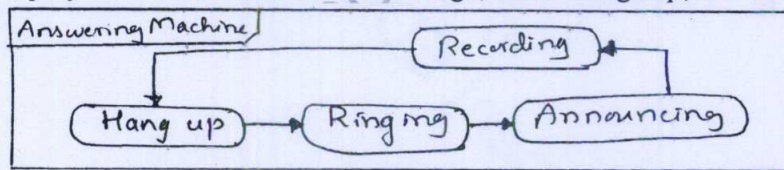   answer call, play announcement, record message, caller hangs up, announcement complete.

Fig.Q2(b)   **(10 Marks)**
   c. Explain aggregation and composition with example.   **(04 Marks)**

3 a. What are nested states? Explain nested states with an example.   **(04 Marks)**
   b. Consider a physical bookstore, such as in a shopping mall:
      i) List three actors that are involved in the design of a checkout system. Explain the
          relevance of each actor.
      ii) One use case is the purchase of items. List another use case at a comparable level of
          abstraction. Summarize the purpose of each use case with a sentence.
      iii) Prepare use case diagram for a physical bookstore checkout system.   **(06 Marks)**
   c. Write the guidelines for sequence model.   **(04 Marks)**
   d. Write scenarios for the following situations:
          Moving a bag of corn, a goose and a fox across a river in a boat. Only one thing may
      be carried in the boat at a time. If the goose is left alone with the corn, the corn will be eaten.
      If the goose is left alone with the fox, the goose will be eaten. Prepare two scenarios, one in
      which something gets eaten and one in which everything is safely transported across the
      river.   **(06 Marks)**

4 a. Explain the stages in the software development process. Which life cycle would you prefer
      in the development? Why?   **(10 Marks)**
   b. Draw and explain the initial domain class model for ATM system with valid classes.
                                                                              (06 Marks)
   c. Explain the system conception.   **(04 Marks)**

PART – B

5 a. What are the steps involved in constructing an application class model? **(10 Marks)**
    b. Name the three kinds of control for the external events in a software system. Describe each control in brief. **(10 Marks)**

6 a. Explain the different tasks involved in design optimization. **(10 Marks)**
    b. What are the outputs from reverse engineering? In brief discuss reverse engineering tips. **(10 Marks)**

7 a. What is pattern? Describe the categories of pattern. **(10 Marks)**
    b. Explain the structure of client-dispatcher-server design pattern using CRC. **(10 Marks)**

8 a. What are idioms? Write the steps to implement the counted pointer idiom. **(10 Marks)**
    b. Write notes on:
       i) Benefits of view handler pattern
       ii) Liabilities of view handler pattern **(10 Marks)**

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