USN ☐☐☐☐☐☐☐☐☐☐

10CS71

Seventh Semester B.E. Degree Examination, June/July 2014
Object-Oriented Modelling and Design

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. With respect to objected oriented modeling and design, explain the concept of OO themes.
   (06 Marks)
   b. Explain the three models useful to model a system and the relationship among them.
   (08 Marks)
   c. Using the class diagram given below, prepare an object diagram for the two triangles with a common side under the following condition:
   i)   A point belongs to exactly one polygon.
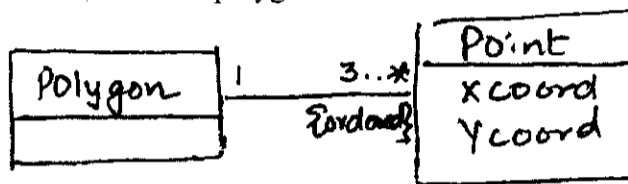   ii) A point belongs to one or more polygon.   **(06 Marks)**

Fig.Q.1(c) Class diagram for polygon and point

2 a. A simple digital watch has a display and two buttons to set it, the A button, and the B button. The watch has two modes of operation, display time, set time in the display time mode, the watch displays hours and minutes, separated by a flashing colon.
   The set time mode has two submodes, set hours, set minutes. The botton A selects modes. Each time it is pressed, the mode advances in the sequence: display, set hours, set minutes, display etc. Within the submodes the button B 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.   **(08 Marks)**
   b. What is an event? Explain the different types of events with example for each one. **(06 Marks)**
   c. Explain the following:
   i)   Aggregation vs association.
   ii) Aggregation vs composition.   **(06 Marks)**

3 a. What do you mean by concurrency? Explain the different types of concurrency among objects.   **(08 Marks)**
   b. What are the guidelines for sequence models?   **(06 Marks)**
   c. Explain the concept of swim lanes used in activity diagram with a simple example for servicing an airplane.   **(06 Marks)**

4 a. Explain the sequence of well-defined development stages of a software development process.   **(10 Marks)**
   b. What steps are performed in constructing a domain state model?   **(10 Marks)**

1 of 2

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.

PART – B

5   a.   With the help of activity diagram, show the possible responses for the verification of card
         inserted by the user at the ATM.   **(08 Marks)**
     b.   How are global resources handled while designing a system and how are boundary
         conditions handled?   **(12 Marks)**

6   Write short notes on:
     a.   Recursing downwards.   **(04 Marks)**
     b.   Two-way associations.   **(06 Marks)**
     c.   Reverse engineering vs forward engineering.   **(06 Marks)**
     d.   Wrapping.   **(04 Marks)**

7   a.   What is a pattern? What makes a pattern? What are its properties?   **(10 Marks)**
     b.   Explain the client-dispatcher-server pattern following the pattern template.   **(10 Marks)**

8   a.   Explain the view handler management pattern.   **(10 Marks)**
     b.   What is an Idiom? Explain how is the counted pointer Idiom makes memory management
         easier.   **(10 Marks)**

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