B. Tech.

(SEM. IV) THEORY EXAMINATION 2010-11

OBJECT ORIENTED SYSTEMS

*Time : 3 Hours*   *Total Marks : 100*

Note :— Attempt ALL questions.

1. Answer any **two** parts :   **(10×2=20)**

   (a) (i) What do you understand by object oriented methodology ? What are the stages of object oriented methodology ? Explain.

   (ii) What is difference between link and association ? Discuss the significance of link and association in object modeling with some suitable example.

   (b) (i) What is the difference between object diagram and class diagram ? Prepare a class diagram from the instance diagram shown in the following figure :
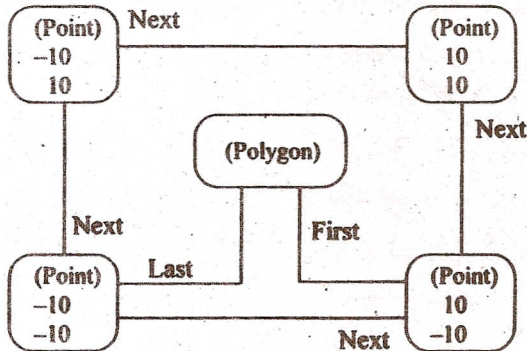
(ii) Define generalization and inheritance. Whether these concepts same ? Discuss. Also give the role of generalization and inheritance in object modeling.

(c) (i) Explain the following terms : Meta data, candidate keys with suitable example.

(ii) What do you mean by workarounds ? What is its role in object modeling ? Discuss with suitable example.

2. Answer any two parts : (10×2=20)

(a) What is a state diagram ? 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 and set time. In the display time mode, hours and minutes are displayed, separated by a flashing colon. The set time mode has two sub-modes, set hours and set minutes. The A button is used to select modes. Each time it is pressed, the mode advances in the sequence : display, set hours, set minutes, display, etc. Within the sub modes, the B button is used to advance 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.

(b) (i) What do you mean by an event ? Describe the scenarios and event trace diagram with an example.

(ii) Write a short note on Nested State diagram with some example.

(c) Discuss the following with suitable example : (i) Aggregation concurrency, (ii) Advanced Dynamic modeling concepts : Entry and exit actions and Internal actions.

3. Answer any two parts : (10×2=20)

(a) There is clear distinction between the definition and implementation of a function. The definition describes the behaviour of the function while the implementation actually computes the function. The definition of the function may be used to test the accuracy of the implementation. Prepare definitions of each of the following using mathematics, diagrams, or pre- and post-conditions : (i) absolute value, (ii) trigonometric sign, (iii) natural algorithm, (iv) square root.

(b) Write short notes on the following : (i) SA/SD, (ii) JSD.

(c) Describe the following terms in reference to functional model : (i) constraint, (ii) control flow, (iii) data store, (iv) activity and (v) terminator.

4. Answer any two parts : (10×2=20)

(a) (i) What are the conventions followed in Java for naming identifiers ? Discuss with suitable examples.

(ii) Describe the Java constants and Java variables in detail.

(b) (i) What do you mean by multithread programming ? What is its significance ? Explain with an example.

(ii) Write a program in Java to reverse the digits of a given positive integer of 5 or more digits.

(c) Write short notes on the following :

    (i) Applet Classes

    (ii) Event Handling

    (iii) Logical and Relational Operators in Java

    (iv) Scope of Variables.

5. Answer any **two** parts :   (10×2=20)

    (a) What do you understand by Java Swing ? What is its significance in application development ? Describe the application of Java Swing using some example.

    (b) (i) Write a short note on Java Beans.

        (ii) Describe Java Database Connectivity (JDBC) with example.

    (c) Write short notes on the following with an example :

        (i) Scrabblets

        (ii) Design of an Image based menu.