

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-IV Examination-Nov/Dec-2011

Subject code: 140704

Date: 02/12/2011

Subject Name: Object Oriented Concepts and Programming

Time: 02.30 pm -5.00 pm

Total marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Define the following terms. **07**

- 1> Class
- 2> Object
- 3> Actor
- 4> State
- 5> Attribute
- 6> Action
- 7> Qualification

(b) Explain features of object oriented programming language **07**

Q.2 (a) Describe three models and relationship between them in detail. **07**

(b) Write a program using function with arguments to swap the values of a pair of integers. **07**

OR

(b) Write a program which include class to represent a vector(a serious of float values). Include member functions to perform the following tasks: **07**

- a> To create the vector
- b> To modify the value of given elements
- c> To Display the given vector in the form(10,20,30)

Q.3 (a) Prepare object diagram showing relationships among the following object classes. Include associations, aggregations, generalizations, qualified associations, multiplicity balls, association names where needed. As you prepare the diagram you may add additional object classes. **07**

Object classes are:

School, Playground, Principal, School board, Class room, book, Student, Teacher, Cafeteria, Rest room, Computer, Desk, Chair, Ruler, Door, Swing, Library

(b) Attempt following questions **07**

- 1> Write a scenario for the following activity
An elevator ride to the top floor
- 2> Draw event trace diagram for phone call

OR

- Q.3 (a)** Prepare object diagram showing relationships among the following object classes. Include associations, aggregations, generalizations, qualified associations, multiplicity balls, association names where needed. As you prepare the diagram you may add additional object classes. Object classes are:
File system, File, Directory, File name, ASCII file, Executable file, Directory file, Disk, Drive, Track, Sector **07**
- (b)** 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 sequences: 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 **07**
- Q.4 (a)** Attempt following questions. **07**
1> Explain Aggregation verses Generalization.
2> Explain Link verses Association.
- (b)** Attempt following questions. **07**
1> Explain function prototyping with example.
2> Explain Memory Management Operator with example.
- OR**
- Q.4 (a)** Attempt following questions **07**
1> Explain Data flow diagram with example
2> Explain State generalization.
- (b)** Attempt following questions. **07**
1> Explain function overloading with example.
2> Explain Inline function with example.
- Q.5 (a)** Attempt following questions **07**
1> Describe operator overloading in C++ with example.
2> Describe type conversion in C++ with example.
- (b)** Explain Constructor and Destructor in C++. **07**
- OR**
- Q.5 (a)** Write down different form of inheritance and describe them in detail **07**
- (b)** Describe data types in C++ in detail. **07**
