

(Following Paper ID and Roll No. to be filled in your Answer Book)

APER ID : 2063

Roll No.

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B.Tech.

(SEM VI) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

OBJECT ORIENTED SYSTEMS & C++

: 3 Hours

Total Marks : 100

: (i) Attempt **ALL** questions.(ii) All questions carry **equal** marks.Attempt **any two** parts of the following :

(2x10=20)

- (a) What are the three kinds of modelling in object technology ? Prepare a class diagram from the instance diagram given in figure-1. Explain your multiplicity decisions. Each point has an X co-ordinate and a Y co-ordinate. What is the smallest number of points required to construct a polygon ? Does it make a difference whether or not a given point may be shared between several polygons ?

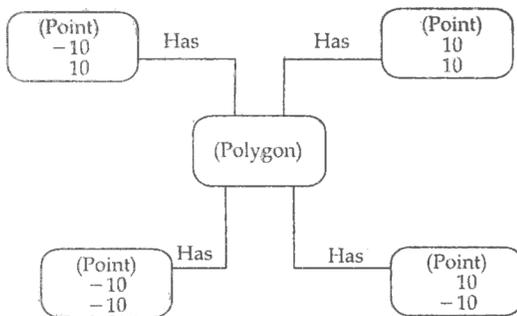


Figure - 1

Prepare an object model to describe directed graphs. A directed graph is similar to an undirected graph, except the edges are oriented. A typical graph is shown in figure-2. Use direction as a qualifier in your diagram so that it is possible to determine the vertex that is connected to the head or to the tail of each edge.

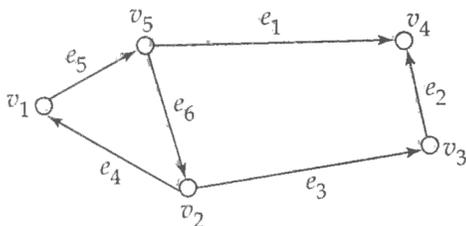


Figure - 2

- (c) Explain the following :
- (i) Metadata
 - (ii) Aggregation vs. Association
 - (iii) Aggregation vs. Generalization
 - (iv) Generalization vs. Inheritance

2. Attempt **any two** parts of the following : (2x10=20)

- (a) Explain the role of scenarios and event trace in context of dynamic modelling. Also draw scenario and event trace for using a telephone line.
- (b) Draw state diagram for programmable thermostat. Your answer must also include subdiagrams for the user interface etc.
- (c) Explain the following in context of dynamic modelling :
 - (i) Conditions
 - (ii) State generalization
 - (iii) Event generalization
 - (iv) Concurrency within an object

3. Attempt **any two** parts of the following : (2x10=20)

- (a) Prepare a data flow diagram for computing the volume and surface area of a cylinder. Inputs are the height and radius of the cylinder. Outputs are volume and surface area. Discuss several ways of implementing the data flow diagram.
- (b) Draw functional model of a flight simulator.
- (c) Compare SA/SD and JSD with OMT methodology.

4. Attempt **any four** of the following : (4x5=20)

- (a) Write a C++ program which calls a function called `cls()`. This function should be capable of clearing a part of the screen. If the function is called without any arguments, then it should clear the entire screen.
- (b) What is the difference in the following two statements ?
`delete a ;`
`delete []a ;`
- (c) What is an inheritance ? Explain different forms of inheritance with proper syntax in C++.
- (d) Write a C++ program to add two complex numbers.
- (e) Explain how exceptions are handled in C++. Explain with a C++ program.
- (f) Explain different characteristics of an object - oriented language.

5. Attempt any four of the following :

(4x5=20)

- (a) Explain the following unix commands with giving example.
- (i) chmod
 - (ii) chown
 - (iii) chgrp
- (b) (i) Name three ways exiting a vi session after saving your work.
(ii) If the power to the machine is cut off while a vi session is active, how does it affect your work ? What salvage operation will you try ?
- (c) (i) What is the significance of the command *ls *.** ?
(ii) What are filters and why they are so important in UNIX?
(iii) Explain tee command in UNIX.
- (d) Explain the following UNIX commands with example :
- (i) time
 - (ii) kill
 - (iii) nice
 - (iv) sort
 - (v) ps
- (e) Draw UNIX file system tree.
- (f) List and explain five UNIX commands for handling ordinary files.

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