02261

Printed Pages – 4 CS – 501

(Following Paper ID and Roll No. to be filled in your Answer Book)										
PAPER ID : 1003 Roll No.										

B.Tech.

FIFTH SEMESTER EXAMINATION, 2005-2006

OBJECT - ORIENTED PROGRAMMING IN C++

Time : 2 Hours *Total Marks : 50*

FTH

Note : *(i) Answer **ALL** questions.*

(ii) All questions carry equal marks.

(iii) In case of numerical problems assume data wherever not provided.

(iv) Be precise in your answer.

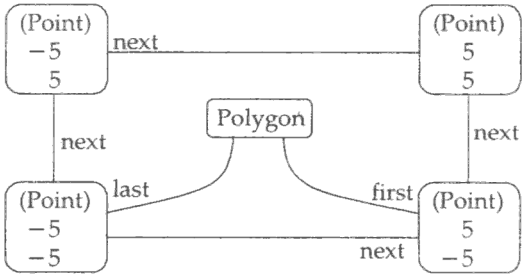
1. Attempt ***any four*** of the following questions : **(4x4=16)**

(a) Define the term object with an example. Differentiate between object instance and object class by proper diagrams.

(b) Discuss the terms link and association by taking suitable example. Also define multiplicity.

(c) What is meant by multiple inheritance ? How it is modeled by using nested generalization ? Explain with proper example.

(d) Prepare a class diagram from the instance diagram shown in the given figure below. Also explain your multiplicity decisions.



(e) Define recursive aggregation with a suitable example.

(f) Prepare a portion of an object diagram for a library checkout system that shows the date a book is due and the late charges for an overdue book as derived objects.

2. Attempt ***any two*** of the following questions : **(6x2=12)**

(a) The direction control for some of the first toy electric trains was accomplished by interrupting the power to the train. Prepare state diagrams for the head light and wheels of the train, corresponding to the following scenario :

(1) Power is off, train is not moving.

(2) Power is turned on, train moves forward and headlight shines.

(3) Power is turned off, train stops and headlight goes out.

(4) Power is turned on, headlight shines and train does not move.

(5) Power is turned off, headlight goes out.

(6) Power is turned on, train runs backward, with its headlights shining.

(7) Power is turned off, train stops, and headlight goes out.

(8) Power is turned on, headlight shines and train does not move.

(9) Power is turned off, headlight goes out.

(10) Power is turned on, train runs forward with its headlight shining.

(b) Explain state and event generalization with suitable examples.

(c) Prepare a DFD for computing the volume and surface area of a cylinder. Inputs are height and radius of the cylinder. Output are volume and surface area. Discuss several ways of implementing the DFD.

3. Attempt *any two* of the following questions : **(6x2=12)**

(a) Write a class description in C++ for complex numbers. Write methods for addition, subtraction, and multiplication of complex number.

(b) Discuss various type of inheritance with proper examples.

(c) Write program in C++ for inserting an element in single linked list.

4. Attempt *any two* of the following questions : **(5x2=10)**

(a) Explain by example in C++ the following :

(i) Virtual function

(ii) Polymorphism

(b) Define the following

(i) Reusability

(ii) Robustness

(c) Compare between SA/SD and JSD.

- o O o -