B. Tech.

(SEM. VI) EXAMINATION, 2008-09

OBJECT ORIENTED SYSTEMS AND C++

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

Note : (1)   Attempt **all** questions.

(2)   All questions carry **equal** marks.

(3)   In case of numerical problems assume data wherever not proided.

(4)   Be precise in your answer.

1   Attempt any **four** parts of the following :   5×4

(a)   What are different kinds of inheritance? What is multiple inheritance? What is derived inheritance?

(b)   (i)   What are static class members? Why do we need these?

(ii)   What is difference between class template and function template? Explain with example.

(c)   What is an aggregation? How specialization and generalization is different?

(d)   How an abstract class is different from concrete derived class? Explain giving examples.

(e)   What is object oriented methodology? Discuss the various stages in it?

(f) Prepare a portion of an object diagram for a class vehicles - rent on system that shows that vehicle is rented and two wheeled and four wheeled vehicles as derived objects.

2 Attempt any **four** parts of the following : 5×4

(a) What is state diagram? Draw the nested state diagram of any suitble example.

(b) Write in short about a dynamic model.

(c) What do you mean by event trace? Explain event trace for a bug in a program.

(d) What do you understand by scenario? Write scenario for

Checking mails in inbox.

(e) Differentiate between

(i) Static / Dynamic object

(ii) Default / Parameterized constructor

(iii) A class / A struct in C++

(iv) Macro / function

(f) How do constructor and destructor behave in derived classes? Explain with examples.

3 Attempt any **two** parts of the following : 10×2

(a) What do you understand by operation in functional modeling and object modeling? Explain with taking two examples of each.

(b) Prepare a data flow diagram for computing the volume and area of rectangle and circle. Input length and width of rectangle and radius of a circle.

(c) What do you mean by operation in functional modeling? Explain the different types of operations.

4   Attempt any **two** parts of the following :   10×2

(a) (i) Differentiate between constructors and destructors. Explain the use of constructors and destructors with suitable examples.

(ii) Describe the copy constructor and explain its use.

(b) (i) What are the advantages of Inline functions? How inline functions are defined outside class?

(ii) What is friend function and friend class? What are their implications on information hiding?

(c) Define the following term with the help of meaning full examples :

(i) Inheritance

(ii) Call by reference

(iii) Polymorphism

(iv) Encapsulation

(v) Virtual function.

5   Write a note on : (any **four**)   5×4

(a) editors supported by Linux/Unix

(b) Advantages and limitations of Linux OS

(c) ls command with all options

(d) shell programming

(e) Basic System administration.