

Printed Pages : 3

TCS – 605

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

PAPER ID : 2063

Roll No.

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**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 provided.  
(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?

2063]



1

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- (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 suitable 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.