

BE 5th Semester Examination – 2006-2007
Business Information Processing and Object Orientation
Paper – CST-501

Time – 3 hours

Full Marks-100

Answer question no 8 and any 5 from the rest. Figures beside each question denotes marks assigned to that question. Two marks are reserved for neatness.

1.
 - a. What is inline function? Explain its merits and demerits. Differentiate it from macro, *in C.*
 - b. What is a reference variable? Explain with a suitable example.
 - c. What is the use of default arguments? Explain with an example. 6+6+4

2.
 - a. What are the use of constructors and destructors, ?
 - b. How many types of constructors are there? Explain copy constructor.
 - c. Consider a toll booth at a bridge. Vehicles passing through the booth are expected to pay toll tax of Rs 50/- each. The booth keeps track of the number of cars passes by and the total amount of money collected.
Write C++ code for the following :
 - i. Model this toll booth with a class named as "toll_booth". Two data items are considered as parts of this class – one unsigned int type data is to hold the total number of cars and the other having data type double is to hold the total amount of money collected as toll.
 - ii. A constructor initializes both the data items to zero.
 - iii. A member function paying_car () increments the number of cars and adds 50 to total amount of money.
 - iv. A member function display () displays the current values of the two data items.
 - v. Finally include a program to test this class. 4+5+7

3.
 - a. What is the need of overloading operators? Name some operators that can not be overloaded.
 - b. Friend function can not be used to overload assignment operator =. Explain why?
 - c. Create a class called 'complex' containing two data members to represent real and imaginary parts each of type integer. Overload the + and – operators in such a way that they are incrementing and decrementing both the data members by 1. 4+5+7

4.
 - a. What is abstract class and virtual base class?
 - b. In what order are the class constructors called when a derived class object is created? Explain with a suitable example.



- c. Class D is derived from class B. The class D does not contain any data members of its own. Does the class D require any constructors? If yes, why?
4+6+6
5. a. Explain the mechanism that C++ uses to achieve runtime polymorphism.
b. What are the application of *this* pointer.
c. what are the advantages of saving data in a file in binary form? How would you determine no of objects in a file?
7+4+5
6. a. Describe the organization of a typical magnetic disk.
b. What do you mean by interleaving factor and fragmentation?
c. Define seek, latency and transfer time.
7+4+5
7. a. Describe field and record organization ^{of file} in detail.
b. A magnetic disk has the following specification
no bytes per sector = 512
no of sectors per track = 63
no of tracks per cylinder = 16
no of cylinders = 4092
How many cylinders does a file (with 25000 fixed length record) require if each record is of length 1024 bytes?
10+6
8. Write short notes (any three) on the following.
a. primary index,
b. secondary index,
c. b+ tree
d. b tree.
e. FAT
f. Templates in C++
3x6