SUPPLEMENTARY EXAMINATION-2014

3rd Semester B.Tech / B.Tech Dual Degree

OOP IT-301

(2012 Admitted Batch)

Full Marks: 60 Time: 3 Hours

Answer any SIX questions including Question No.1 which is compulsory.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

1. *Answer all the questions.* [2 × 10

a) When should we make a call by reference?

b) Find the output of the following program.

```
#include<iostream>
using namespace std;
class test
{
public:
virtual void get()
{
cout<<"hello";
}
};
class derived:public test
{
private:
virtual void get()
```

```
{
cout<<"hi";
}
};
main()
{
test *p;
derived d;
p=&d;
(*p).get();
}
```

c) "Can we overload a function with default arguments"? Justify your answer.

d) Write the order in which the constructors and destructors are invoked in the following inheritance.

Class derived: public base1, virtual protected base2, virtual private base3

(the class names are : derived,base1,base2 and base3)

e) Whether the virtual function overridden in the derived class must have the same prototype? Justify your answer.

f) Write the syntax of overloading the post decrement and pre increment operators using friend function.

g) Explain the function of seekg( ) and tellg( ) in file manipulation.

h) Differentiate between nested class and local class.

i) What is the meaning of writing the following instruction?

cout.precision(n)

(where n is a positive integral value)

j) Explain why a copy constructor takes a reference to the class object in its argument?

2. a) Give a comparative analysis on object oriented programming and procedure oriented programming. [4

b) What are the advantages of dynamic memory management? Explain how it is implemented in C++ programming and also justify the concept of making allocated memory free. [4

3. a) Write a program to create a class matrix that uses a parameterized constructor which takes the input as no. of rows and no. of columns. The constructor should dynamically allocate the memory for the whole matrix depending on the given no. of rows and no. of columns. Write a function to add two matrices. The class should have a destructor to deallocate the dynamic memory. [4

b) What is the reusability property of OOP? If a class is derived in private mode and its base class is having both default and parameterised constructor then explain how the base class constructors are executed with an example. [4

4. a) Write a program to create a class "student" that stores the name, rollnum ,and 3 subject marks. Write the following member functions for different operations. [4

(i) Take the information for each student.

(ii) Calculate the grade for each subject (O: 100-90, A: 89-70, B: 69-50, F: <50).

(iii) Display the grades of each subject for each student.

b) Explain the role of virtual function in C++ programming with an example. [4

5. a) How the increment and decrement operators are overloaded using friend function? Explain the implementation by writing a program. [4

b) What is hybrid inheritance? Why the virtual keyword is used with hybrid inheritance? Explain with examples. [4

6. a) What is the advantage of generic programming? Write a program to create a class template that stores two data members and swap them using template function. [4

b) Write a program to enter your name from keyboard. Fetch only the vowels from the entered string and store them to a FILE. [4

7. Write a program to enter the vehicle number from key board on the following conditions. [8

(i) The first two characters are combinations of alphabates (A to Z) except the combination IN.

(ii) Next four are combination of digits (0 to 9) except the combination 0000.

If the input deviates from any of the above constraints then handle it with proper exceptions.

8. Write short notes on any four. [2 × 4

a) function overriding.

b) application of STL.

c) specifying exception.

d) casting operator function.

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