ROLL NO. _____

Code: DE70/DC56 Subject: OBJECT ORIENTED PROGRAMMI[illegible]L C++

DIPIETE – ET/CS

Time: 3 Hours **DECEMBER 2013** **Max. Marks: 10[illegible]**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. The operator << is called _____.

(A) an insertion operator **(B)** put to operator
(C) both **(A)** or **(B)** **(D)** none of these

b. The fields in a class of a C++ program are by default _____.

(A) Protected **(B)** Public
(C) Private **(D)** None of these

c. Which of the following cannot be passed to a function?

(A) Reference variables **(B)** Arrays
(C) Class objects **(D)** Header files

d. An exception is caused by _____.

(A) a hardware problem **(B)** a problem in the operating system
(C) a syntax error **(D)** a run time error

e. _____allows you to create a derived class that inherits properties from more than one base class.

(A) Multilevel inheritance **(B)** Hybrid Inheritance
(C) Hierarchical Inheritance **(D)** Multiple inheritance

f. _____feature in OOP allows reusing code.

(A) Polymorphism **(B)** Inheritance
(C) Encapsulation **(D)** Data hiding

g. _____are bound dynamically at run time.

(A) static class **(B)** virtual functions
(C) friend functions **(D)** inline functions

h. Which of these C++ feature allow you to create classes that are dynamic in terms of the types of data they can handle?

(A) Inheritance **(B)** Templates
(C) Polymorphism **(D)** Information hiding

i. The output of
```
{
int a = 5;
int b = 10;
cout << (a>b?a:b);
}
```

(A) 5 **(B)** 10
(C) Syntax error **(D)** None of these

j.
```
int a = 10;
void main()
{
int a = 20;
cout << a << ::a;
}
```
The output of this program is

(A) 10 20 **(B)** 20 10
(C) Syntax error **(D)** 20 20

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Compare and contrast Procedure-oriented Programming with Object-oriented programming. **(8)**

b. Write a program to determine whether the number entered by the user is prime or not. **(8)**

Q.3 a. Write a program in C++ for multiplication of two matrices. **(8)**

b. What are structures in C++? How does a structure differ from an array? Explain. **(8)**

Q.4 a. Explain the concept of a class in object-oriented paradigm. How does it accomplish data hiding? **(8)**

b. What is friend function? What are merits and demerits of using fr... functions? Show by an example how friend function is used in C++. **(8)**

Q.5 a. What are destructors? List atleast five special characteristics of the destructors. **(8)**

b. What is operator overloading? Why is it necessary to overload an operator? List atleast four rules for operator overloading. **(8)**

Q.6 a. What is multiple inheritance? Discuss the syntax and rules of multiple inheritance in C++. How can you pass parameters to the constructors of base classes in multiple inheritance? Explain with suitable example. **(8)**

b. How does inheritance influence the working of constructor and destructor? Given the following set of definitions. **(8)**

```
class x
{
};
class y: public x
{
};
class z: public y
{
};
z obj;
```

What order will the constructor and destructor be invoked?

Q.7 a. Explain the meaning of polymorphism. Describe how polymorphism is accomplished in C++ taking a suitable example. **(8)**

b. What is an exception? How is it handled in C++? What are the advantages of using exception handling mechanism in a program? **(8)**

Q.8 a. What do you mean by template in C++? Briefly explain its various types. List various limitations of using a template. **(8)**

b. Write a function template for sorting a list of arrays. **(8)**

Q.9 a. Describe the concept of error handling during file operations. Explain various error handling functions in detail with the help of an example. **(8)**

b. Explain the following member functions which are used for I/O operations on files.

(i) put (ii) get
(iii) read (iv) write **(8)**