ROLL NO. _____

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

DIPIETE – ET/CS

Time: 3 Hours **DECEMBER 2012** **Max. Marks: 100**

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. _____is the quality that allows one name to be used for two or more related but technically different purposes.

(A) Polymorphism **(B)** Inheritance
(C) Encapsulation **(D)** Containership

b. By default, all member functions and variables defined in C++ are *private* to that class.

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

c. The name of a destructor is the name of its class

(A) preceded by a ~ **(B)** followed by a ~
(C) preceded by a < **(D)** followed by a <

d. To delete a dynamically allocated array, use.

(A) Free p-var; **(B)** delete [ ] *p-var*;
(C) Calloc p-var; **(D)** None of these

e. What is output of the following C++ program:

```
#include<stdio.h>
int main(int argc, char **argv) {
int i, j, k;
i = 4; j = ++i;
i = 4; k = i++;
cout << j << ‘ ’ << k << ’\n’;
}
```

(A) 5 4 **(B)** 4 4
(C) 5 5 **(D)** 0 0

f. Which is true for a reference in C++?

(A) a reference can be passed to a function
(B) a reference can be return by a function
(C) an independent reference can be created
(D) All of these

g. Member functions of a generic class are, themselves, _____

(A) automatically generic
(B) never generic
(C) generic if they are friend function
(D) generic if preceded by inline keyword

h. - >* is called _____.

(A) Pointer-to-member operator **(B)** Pointer to member declaratory
(C) Memory allocation operator **(D)** assignment operator

i. You can have _____catch associated with a try.

(A) only one **(B)** one or more than one
(C) only two **(D)** None of these

j. You can determine the current position of each file pointer by using ____

(A) pos_type tellp( ) member function
(B) pos_type tellg( ) member function
(C) Both of these member functions
(D) None of these

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

Q.2 a. How are data and functions organized in an object-oriented program? **(5)**

b. List a few areas of application of OOP technology. **(5)**

c. What are the applications of void data type in C++? Write a C++ program that illustrates the concept. **(6)**

Q.3 a. Write a program to represent two matrices of dimension 2×3 in an array. Write functions for adding and subtracting these two matrices. **(8)**

b. Write a program to create a structure called date (month, day, year). Acc[illegible] today's date and determine tomorrow's date. (Note: You need to consider end of month and end of year) **(8)**

Q.4 a. How does a C++ structure differ from a C++ class? Explain. **(4)**

b. Show by a suitable C++ program how an object can be created within a function and returned to another function. **(7)**

c. What are advantages and disadvantages of using In-line function? Show by an example how inline function is used in C++. **(5)**

Q.5 a. List some special properties of the constructor function. **(6)**

b. Write a C++ program that overload '+' operator to add two coordinates from a class 'coord' having X and Y-coordinate. **(10)**

Q.6 a. "When a base class and a derived class both have constructor and destructor functions, the constructor functions are executed in order of derivation. The destructor functions are executed in reverse order." Justify the statement giving suitable C++ statement. **(8)**

b. What is a virtual base class? When do we make a class virtual? Illustrate with a suitable C++ program the concept of virtual class. **(8)**

Q.7 a. What is polymorphism? Discuss in brief two different types of polymorphism. **(5)**

b. Can you write an exception handler that catch all exceptions instead of just a certain type? How? **(5)**

c. Write an example C++ program that shows 're-throwing an exception' concept. **(6)**

Q.8 a. What do you mean by 'Generic function'? Write a generic function that swaps the values of the two variables it is called with. **(8)**

b. What is the basic difference between a template and an overloaded function? Show by a suitable program in C++, how generic functions can be overloaded. **(8)**

Q.9 a. Explain return value and meaning of the following error handling functions during file operations: eof(), fail(), bad(), good()
Write a small C++ program that make use of these functions. **(8)**

b. Write a programme to copy contents of file story.txt into newstory.txt **(8)**