

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';
}
```

Code: DE70 / DC56 Subject: OBJECT ORIENTED PROGRAMMING WITH C++

- (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). Accept 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)