

Code: DE70/DC56/ DE122/DC106

Subject: OBJECT ORIENTED PROGRAMMING WITH C++

**DipIETE – ET/CS (Current & New Scheme)**

Time: 3 Hours

**DECEMBER 2015**

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. The operator used for dynamic memory allocation in C++ is
- (A) malloc (B) calloc  
(C) free (D) new
- b. cin is an object of class
- (A) istream (B) ostream  
(C) iostream (D) stream
- c. Operator overloading concept implements
- (A) Inheritance (B) Polymorphism  
(C) Both (A) & (B) (D) None of these
- d. Which of the following is not a member function?
- (A) Static function (B) Friend function  
(C) Inline function (D) None of these
- e. Which of the following concept means determining at runtime what method to invoke?
- (A) Data hiding (B) Dynamic binding  
(C) Dynamic typing (D) Dynamic loading
- f. Which of the following cannot be virtual
- (A) Constructor (B) Destructor  
(C) Member function (D) Friend function

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- g. Which of the following do not have return types?
- (A) constructors (B) destructors  
(C) Both (A) & (B) (D) None of these
- h. Which of the following is a mechanism of static polymorphism?
- (A) Operator Overloading (B) Templates  
(C) Function Overloading (D) All of these
- i. Which of the following is correct about the statements given below?
- (i) All operators can be overloaded in C++.  
(ii) We can change the basic meaning of an operator in C++
- (A) Only (i) is true (B) Both (i) and (ii) are false  
(C) Only (ii) is true (D) Both (i) and (ii) are true
- j. Which of the following header file includes definition of *cin* and *cout*?
- (A) istream.h (B) ostream.h  
(C) iomanip.h (D) iostream.h

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

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- Q.2** a. Define Object-oriented programming. List and explain various features of Object-oriented programming paradigm. (8)
- b. Explain in brief the structure of a C++ program. (4)
- c. Write a program in C++ which generates the following pattern (4)
- ```
5    5    5    5    5
4    4    4    4
3    3    3
2    2
1
```
- Q.3** a. Write a program in C++ for addition of two matrices. (8)
- b. How do structures in C and C++ differ? Explain with the help of an example. (4)
- c. Write a program code in C++ for generating a fibonacci series for more than one number. (4)

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- Q.4** a. Differentiate between *Call by value* and *Call by reference* by taking suitable example. (8)
- b. What is Inline function? What are advantages and disadvantages of using Inline function? Write an Inline function in C++ that returns maximum of two numbers. (8)
- Q.5** a. What is constructor? Is it mandatory to use constructor in a class? List five special characteristics of the constructor functions. (8)
- b. What is operator overloading? Explain with the help of suitable example. List various exceptions to operator overloading. (8)
- Q.6** a. What does inheritance mean in C++? Explain the ambiguity problem that occurs in single inheritance. Write a program to avoid that ambiguity. (8)
- b. List various limitations of Inheritance. (8)
- Q.7** a. What is Polymorphism? Explain in details various types of Polymorphism. (8)
- b. What is an exception? Explain the mechanism of throwing and rethrowing exceptions. (8)
- Q.8** a. Differentiate between Function Template and Class Template. (8)
- b. Explain the concept of Template Specialization. Give example. (8)
- Q.9** a. Explain in detail: (8)
- (i) Standard I/O in C++
- (ii) File I/O in C++
- b. Explain the concept of streams. List and briefly explain various stream classes. (8)