2013

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective-type Questions)

Answer all questions.

1. Choose the correct answer of the following:

\[ 2 \times 10 = 20 \]

(a) Which operator is used by a function to refer to the original object in the calling function?

(i) \( \gg \)

(ii) \( * \)

(iii) \&

(iv) \( << \)

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(Turn over)
(b) Which of the following is NOT a unary operator?
(i) !
(ii) %
(iii) ++
(iv) –

(c) In C++, what is the & = operator called?
(i) Assign bitwise AND operator
(ii) Bitwise AND operator
(iii) Assign bitwise OR operator
(iv) Bitwise OR operator

(d) A process of a class can contain object of another class is called:
(i) Nesting
(ii) Friend
(iii) Data Abstraction
(iv) Encapsulation

(e) When a subclass inherits from a class which itself has inherited from another class, it is known as:
(i) Multilevel inheritance
(ii) Single inheritance
(iii) Multiple inheritance
(iv) Hierarchical inheritance

(f) Operator overloading is called:
   (i) Runtime polymorphism
   (ii) Compile time polymorphism
   (iii) Complex overloading
   (iv) Abstract overloading

(g) A public nested class can be accessed from anywhere using the ________ operator.
   (i) sizeof
   (ii) Scope resolution
   (iii) Ternary
   (iv) Binary

(h) An exception is caused by:
   (i) A hardware problem
   (ii) A problem in the operating system
   (iii) A run-time error
   (iv) A syntax error

(i) Which of the operator cannot be overloaded?
   (i) Delete

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(ii) 
(iii) New
(iv) +
(j) The new operator in C++:
(i) Returns an object
(ii) Creates an object called new
(iii) Allocates memory for a new variable and returns its address
(iv) Is used to check if enough memory is available for the program

Group - B

(Long-answer Type Questions)

Answer any four questions of the following:

2. Explain the left-shift and right-shift bitwise operators with example.  

3. Write a program using C++ to swap two numbers without taking third variable. 

4. Explain, in brief, a class template? List the merits and demerits of using a template in C++. 

UK – 7/3 (4) Contd.
5. (a) Differentiate between private, public and protected data members of the class using example.

(b) Write a program using C++ to create the Fibonacci series of given range starting from 0.

6. Define a class to represent a book in a library. Include the following members:

- Data Members:
  - Book Number
  - Book Name
  - Author
  - Publisher
  - Price
  - No. of copies
  - No. of copies issued

- Member functions:
  - (a) To assign initial values
  - (b) To issue a book after checking for its availability
  - (c) To return a book
  - (d) To display book information

7. (a) How objects of the class can be defined using arrays? Give an example.

(b) Explain inline function? How does it differ from ordinary function? Explain the merits and demerits of it.
8. (a) What are the rules to be followed for declaring a copy constructor member function in C++?  
(b) What are friend functions? How are they defined? What is the relation of friend function with public and protected data members of the class?  

9. (a) What do you mean by inheritance? What are its various advantages and disadvantages?  
(b) Write a program using C++ of multiple inheritance to get the data from two base classes and display it using the derived class.  

10. (a) Explain the technique of late binding / dynamic binding.  
(b) Write a program using C++ to concatenate two string using operator overloading.  

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