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(3rd Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA–304

(Object-oriented Programming in C++)

(New Course)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

*The figures in the margin indicate full marks
for the questions*

Answer *any* **five** questions

1. *(a)* What are objects? How are they created?   2

   (b) What is the basic difference between structure members and class members?   2

   (c) What is a class? How does it accomplish data hiding?   2

   (d) Explain the following terms :   2+2=4

       (i) Inheritance

       (ii) Function overloading

      (*Turn Over*)

2. *(a)* How is working of a member function different from a friend function?   2

    (b) Differentiate between public member and private member of a class.   2

    (c) What is a constructor? Write two characteristics of a constructor.   1+2=3

    (d) Write an OOP which accepts two numbers from the user and prints the larger one.   3

3. *(a)* What is a friend function? Write any two special characteristics of friend function.
    1+2=3

    (b) What are the properties of static member function?   2

    (c) What is the use of array of object? Explain with a program example.   5

4. *(a)* What is an operator function? Describe the syntax of an operator function.   1+2=3

    (b) Explain with an example the rules for overloading a binary operator.   3

    (c) Explain the conversion from class type to object type with example.   4

    (Continued)

5. (a) What do you mean by abstract class? Write the syntax for defining a derived constructor. 2

   (b) What is a virtual base class? Explain with example. 1+2=3

   (c) What are the different forms of inheritance? Give an example for each. 5

6. (a) Differentiate between logic error and syntactic error. 2

   (b) How is polymorphism achieved at compile time and run time? 2

   (c) Explain pointers to objects with a suitable program. 6

7. (a) What is a stream? 1

   (b) Explain any four file modes. 4

   (c) Explain hierarchy of stream classes with a neat and labeled diagram. 5

8. (a) What do you mean by class template? Give example. 1+1=2

   (b) Write the error handling function in C++. 4

   (c) What is the difference between opening a file with a constructor function and opening a file with open( ) function? Explain any one in detail with a program. 4

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(3rd Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA–304

(Object-oriented Programming in C++)

(New Course)

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—I

(*Marks* : 15)

1. Choose the correct alternative by putting a Tick (✓) mark in the brackets provided : 1×10=10

   (a) Using the same operator or function for performing operations on two or more different types of entities is called

   (i) constructor (   )

   (ii) encapsulation (   )

   (iii) polymorphism (   )

   (iv) inheritance (   )

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(b) To which of the following, a friend function is related?

   (i) Public members ( )

   (ii) Private and public members ( )

   (iii) Private members ( )

   (iv) Neither private nor public members ( )

(c) How many destructor a class can have?

   (i) 2 ( )

   (ii) 1 ( )

   (iii) n ( )

   (iv) $n+1$ ( )

(d) For accessing members through object pointers _____ operator is used.

   (i) star ( )

   (ii) ampersand ( )

   (iii) dot ( )

   (iv) arrow ( )

(e) If a class *A* inherits class *B* in protected mode, then what will be the status of public members of *B* in *A*?

    (i) Public   (   )

    (ii) Private   (   )

    (iii) Protected   (   )

    (iv) None of the above   (   )

(f) A _____ takes a reference to an object of the same class as itself as an argument.

    (i) static function   (   )

    (ii) constructor   (   )

    (iii) friend function   (   )

(g) _____ are basically used for storing addresses.

    (i) Pointers   (   )

    (ii) Classes   (   )

    (iii) Arrays   (   )

    (iv) Structures   (   )

(4)

(h) Which of the following functions gives the current position of the get pointer?

    (i)   tellg( )   (   )

    (ii) tellp( )   (   )

    (iii) seekg( )   (   )

    (iv) seekp( )   (   )

(i) _____ are run time anomalies or unusual conditions that a program may encounter while executing.

    (i)   Containers   (   )

    (ii) Templates   (   )

    (iii) Exceptions   (   )

    (iv) Streams   (   )

(j) _____ provides support for generic programming.

    (i)   Friend function   (   )

    (ii) Template   (   )

    (iii) Constructor   (   )

    (iv) Destructor   (   )

2. Indicate *True (T)* or *False (F)* by a Tick (✓) mark :

1×5=5

(a) The 'this pointer' is automatically passed to a member function when it is called.

(T / F)

(b) The statement 'return' can return more than one values.

(T / F)

(c) Constructor that can take argument is called default constructor.

(T / F)

(d) The function put() is used for writing a character on the terminal.

(T / F)

(e) A container is an object that stores or holds data (of same type).

(T / F)

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SECTION—II

(*Marks* : 10)

2×5=10

3. Answer the following questions :

(a) Define object-oriented programming.

(b) What do you mean by virtual function?

(c) When do we use the protected visibility specifier to a class member?

(d) Class c3 gets derived from class c2 in public mode and class c2 gets derived from class c1 in protected mode. Write C++ statement that would define this type of inheritance in the program.

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(e) What is the difference between passing a parameter by value and passing a parameter by reference?

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