

2015

(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 ()

(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 ()

(3)

(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 ()

(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 ()

(5)

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)

(6)

SECTION—II

(Marks : 10)

3. Answer the following questions : 2×5=10

(a) Define object-oriented programming.

(7)

(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.

(9)

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

III/BCA/304

2015

(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

G16/182a

(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

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

2015

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA-401

(Object-oriented Programming in C++)

(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 : $1 \times 10 = 10$

(a) A static member function can be called using the

(i) object name ()

(ii) class name ()

(iii) reference name ()

(iv) alias name ()

(b) A function draws a point when single value is given. It draws a line if two values are given. What do you think this feature is?

(i) Encapsulation ()

(ii) Inheritance ()

(iii) Polymorphism ()

(iv) Constructor ()

(c) The — can be invoked like a normal function without the help of any object.

(i) friend function ()

(ii) static member function ()

(iii) virtual function ()

(iv) inline function ()

(d) — is used to initialize an object using another object of the same class.

(i) Destructor ()

(ii) Copy constructor ()

(iii) Parameterized constructor ()

(iv) Default constructor ()

(e) In overloading of binary operators, the — operand is used to invoke the operator function and the — operand is passed as an argument.

(i) right hand, left hand ()

(ii) down hand, up hand ()

(iii) up hand, down hand ()

(iv) left hand, right hand ()

(f) An abstract class is designed to act

(i) only as a derived class ()

(ii) as a derived class and a base class ()

(iii) only as a base class ()

(iv) neither as a derived class nor as a base class ()

(g) The binding that takes place during run time is known as

(i) early binding ()

(ii) late binding ()

(iii) static binding ()

(iv) medium binding ()

(h) — is achieved only when a virtual function is accessed through a pointer to the base class.

(i) Run-time polymorphism ()

(ii) Polymorphism ()

(iii) Friend function ()

(iv) Function overloading ()

(i) When a function is declared — the compiler replaces the function call with the respective function code.

(i) static * ()

(ii) friend ()

(iii) virtual ()

(iv) inline ()

(i) A generic function can be created using

(i) exception ()

(ii) template ()

(iii) container ()

(iv) abstract class ()

(5)

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

(a) When an object is created, separate memory is allocated for its data members.

(T / F)

(b) Private members cannot be accessed by a friend function.

(T / F)

(c) The scope resolution operator can be used to uncover a hidden variable in C++.

(T / F)

(d) By default, members of a class are private.

(T / F)

(e) Exception means out of the ordinary or deviating from the normal course.

(T / F)

(6)

SECTION—II

(Marks : 10)

3. Answer the following questions : 2×5=10

(a) Define object. Give example.

(7)

(b) What do you mean by inline function?

(8)

(c) What do you mean by file pointer? Explain.

(9)

(d) Explain 'new' and 'delete' operators.

(10)

(e) Write the output of the following program :

```
#include <iostream.h>
class student
{
    public : student()
    {
        cout<<"\n I am constructor of student class";
    }
    ~student()
    {
        cout<<"\n I am destructor of student class";
    }
};
void main()
{
    cout<<"\n Starting main()";
    student S1, S2;
    cout<<"\n Ending main()";
}
```

IV/BCA/401

2015

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA-401

(Object-oriented Programming in C++)

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) Write any three advantages of object-oriented programming. 3
- (b) Explain the three visibility modes in C++. 3
- (c) Explain the following terms : 2×2=4
 - (i) Encapsulation
 - (ii) Polymorphism

2. (a) What do you mean by function overloading? Explain with an example. 1+3=4
- (b) Differentiate between structure and class. 4
- (c) How will you define a function? Write the syntax. 2
3. (a) Write the three special characteristics of static data member. 3
- (b) When do we need to use default argument in a function? Explain with an example. 2+3=5
- (c) What do you mean by virtual base class? 2
4. (a) What is a constructor? How is it defined and when is it called? 1+4=5
- (b) What do you mean by copy constructor? Write a program to show the use of a copy constructor. 1+4=5
5. (a) Write any five special characteristics of a friend function. 5
- (b) How is working of a member function different from a friend function and a non-member function? 3
- (c) Define pointer. How will you declare and initialize a pointer? 2

6. (a) Name and explain different forms of inheritance. 5
- (b) List the main advantages of inheritance. 2
- (c) Explain the conversion from basic type to class type with example. 3

7. (a) What is a file? In how many ways can a file be opened? Write the general syntax of each. 1+4=5

- (b) Consider the following class declaration : 3

```
class student
{
    int rno;
    char name [20];
    char section [5];
public : void readdata( ); //to read an object from keyboard.
        void writedata( ); //to write an object into binary file.
        void showdata( ); //to display the contents.
};
```

- (c) Distinguish between ios::app and ios::ate. 2

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

- (b) Define container. With a neat diagram, explain the three categories of container. 1+3=4