

2 0 1 8

( 4th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

Paper : BCA-401 (OC)

**( Object-oriented Programming in C++ )**

( Old Course )

Full Marks : 75

Time : 3 hours

**( PART : A—OBJECTIVE )**

( Marks : 25 )

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

SECTION—A

( Marks : 15 )

1. Tick (✓) the correct answer in the brackets provided : 1×10=10
- (a) The process of building new classes from existing one is called
- (i) encapsulation ( )
  - (ii) inheritance ( )
  - (iii) polymorphism ( )
  - (iv) abstraction ( )
- (b) In C++, it allows compiler to insert arguments in a function call if it is not specified, it is
- (i) pass by value ( )
  - (ii) pass by address ( )
  - (iii) default argument ( )
  - (iv) default function ( )

- (c) Which of the following functions is performed by a constructor?
- (i) Construct a new class ( )
  - (ii) Construct a new object ( )
  - (iii) Construct a new function ( )
  - (iv) Initialize an object ( )
- (d) Run-time polymorphism is done by
- (i) operator overloading ( )
  - (ii) function overriding ( )
  - (iii) static binding ( )
  - (iv) function overloading ( )
- (e) Which of the following operators cannot be overloaded?
- (i) :: ( )
  - (ii) [] ( )
  - (iii) ( )
  - (iv) ~ ( )
- (f) A function that is expanded in line when it is invoked is
- (i) 'called' function ( )
  - (ii) function definition ( )
  - (iii) inline function ( )
  - (iv) macrodefinition ( )
- (g) Which of the following is not the member of class?
- (i) Static function ( )
  - (ii) Virtual function ( )
  - (iii) Const function ( )
  - (iv) Friend function ( )
- (h) An exception is caused by
- (i) a compile time error ( )
  - (ii) a run-time error ( )
  - (iii) a logical/syntax error ( )
  - (iv) a hardware problem ( )

- (i) A destructor takes
- (i) zero argument ( )
  - (ii) one argument ( )
  - (iii) two arguments ( )
  - (iv) All of the above ( )
- (j) A pure virtual function is declared by
- (i) virtual void display () {0}; ( )
  - (ii) virtual void display 0; ( )
  - (iii) virtual void display (void) 0; ( )
  - (iv) void display (void) 0; ( )

- 2.** State whether the following statements are True (T) or False (F) by putting a Tick (✓) mark : 1×5=5
- (a) In C++, the operator >> is known as insertion operator. (T/F)
  - (b) When an exception is not caught, the program is aborted. (T/F)
  - (c) We can have virtual destructors but not virtual constructors. (T/F)
  - (d) A variable can have multiple references. (T/F)
  - (e) There are any numbers of instances of an abstract class can be created. (T/F)

### SECTION—B

( Marks : 10 )

Answer the following questions : 2×5=10

1. What do you mean by dynamic binding? How is it useful in OOP?
2. What is a stream? What are the C++ stream classes?
3. Explain about 'this' pointer.
4. What is function prototype? Give an example.
5. What is an abstract class? When do we make a class virtual?

**( PART : B—DESCRIPTIVE )**

( Marks : 50 )

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

1. (a) Write the characteristics of OOP. 4  
(b) Explain the following terms : 6  
(i) Namespace  
(ii) Scope resolution operator (::)  
(iii) Input and output operators
- OR**
- (c) Describe the major parts of a C++ program. 4  
(d) Explain the basic concepts of object-oriented programming. 6
2. (a) Explain the concept of call by reference with a suitable example using class. 6  
(b) Explain the storage classes in C++. 4
- OR**
- (c) Explain the concept of overloaded functions with an example. 6  
(d) What is inline function? When will you make a function inline and why? 4
3. (a) What is a constructor? Explain with a suitable example. 1+5  
(b) Differentiate between shallow copy and deep copy. 4
- OR**
- (c) What is operator overloading? Write the general form of an operator function. 1+4  
(d) Write a CPP program to illustrate the use of copy constructors. 5
4. (a) What is destructor? Write any three characteristics of destructor. 1+3  
(b) Write a program to show how the unary plus operator is overloaded. 6
- OR**
- (c) Explain different types of inheritance with diagram. 4  
(d) Write a CPP program to illustrate the concept multiple inheritance. 6
5. (a) What is friend function? Explain with an example. 1+5  
(b) Explain the concept of pointer to object with an example. 4
- OR**
- (c) What is a template? Write a program to explain function template. 1+5  
(d) What is a file? Explain various file mode options in C++. 1+3

★ ★ ★