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

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

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Paper No. : BCA-304

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(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 ( )

(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 ( )

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)

SECTION—II

(*Marks* : 10)

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

(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.

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

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