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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–401(OC)

(Object-oriented Programming in C++)

(Old 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) The process of building new classes from existing one is called

   (i) polymorphism   (   )

   (ii) inheritance   (   )

   (iii) structure   (   )

   (iv) encapsulation   (   )

(b) Consider the following statements :

   char*ptr; ptr="hello"; cout<<*ptr;

   What will be printed?

   (i)   First letter   (   )

   (ii) Entire string   (   )

   (iii) Last letter   (   )

   (iv) Syntax error   (   )

(c) Run-time polymorphism is achieved by

   (i)   friend function   (   )

   (ii) operator overloading   (   )

   (iii) virtual function   (   )

   (iv) function overloading   (   )

(d) In C++, dynamic memory allocation is accomplished with the opeator

   (i)   malloc ()   (   )

   (ii) new()   (   )

   (iii) this   (   )

   (iv) new   (   )

(e) The operator that cannot be overloaded is

    (i) ++   ( )

    (ii) ()   ( )

    (iii) : :   ( )

    (iv) ~   ( )

(f) The member of a class, by default, are

    (i) public   ( )

    (ii) private   ( )

    (iii) protected   ( )

    (iv) mandatory to specify   ( )

(g) The library function exit() causes an exit from

    (i) the loop in which it occurs   ( )

    (ii) the function in which it occurs   ( )

    (iii) the block in which it occurs   ( )

    (iv) the program in which it occurs   ( )

(h) Maximum number of template arguments in a function template is

    (i) one   ( )

    (ii) three   ( )

    (iii) two   ( )

    (iv) many   ( )

(i) An exception is caused by

    (i) a run time error   ( )

    (ii) a logical/syntax error   ( )

    (iii) a compile time error   ( )

    (iv) a hardware problem   ( )

(j) To declare a *pure virtual* function is

    (i) virtual void Display (void){0};   ( )

    (ii) virtual void Display(void)=0;   ( )

    (iii) virtual void Display=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) Function templates can accept only parameters of the basic type.

(T / F)

(b) When an exception is not caught, the program is aborted.

(T / F)

(c) We can have virtual constructors but not virtual destructors.

(T / F)

(d) A static function can be called using the class name and function name.

(T / F)

(e) There are many numbers of instances of an abstract class that can be created.

(T / F)

(6)

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

    (a) What are the various ways of handling exceptions?

(b) What is function prototyping? Explain with an example.

(c) What are static functions? Write any two characteristics.

(d) What is dynamic initialization of objects? Why is it needed?

(e) Explain virtual function.

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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–401(OC)

(Object-oriented Programming in C++)

(Old Course)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

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

1. Answer the following questions :

   (a) What is OOP? How does a C++ structure
   differ from a C++ class?   4

   (b) Explain the following terms :   6
       (i) this pointer
       (ii) Inheritance
       (iii) Polymorphism

(2)

Or

(c) Explain the general form of class declaration. 4

(d) Explain the following terms : 6

   (i) Namespace

   (ii) Inline function

   (iii) Reference variable

2. (a) Explain the concept of multiple inheritances with an example. 5

  (b) Write a C++ program to find the sum of digits of a number reducing it to one digit. 5

Or

(c) When do we need to use default argument in a function? Give an example. 4

(d) Write a C++ program to illustrate the use of overloaded constructors. 6

3. (a) Differentiate between constructor and copy constructor. 3

  (b) Write a C++ program to overload the operator '+' for complex numbers. 7

Or

(c) Differentiate between function overloading and function overriding. 4

(d) Write a C++ program to show type conversion from class type to basic type. 6

4. *(a)* Explain the concept of pointer to object with an example.   4

    (b) What is an abstract class? Explain with an example.   6

Or

    (c) What is friend function? Why do we need friend function?   4

    (d) What is virtual base class? Explain run-time polymorphism with an example.   6

5. *(a)* What is a template? Write a program to explain function template.   5

    (b) What is a file mode? Explain various file mode options in C++.   3

    (c) What are generic classes? Why are they useful?   2

Or

    (d) What is an exception? How is it handled in C++?   4

    (e) Describe various classes available for file operations.   3

    (f) Explain any two functions (with example) for manipulating file pointers.   3

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2016

(3rd Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA–304

(Object-oriented Programming in C++)

Full Marks : 75

Time : 3 hours   2 3 NOV 2016

(PART : B—DESCRIPTIVE)

2 3 NOV 2016

(*Marks* : 50)

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

1. *(a)* What is a class? Explain the general form
   of class declaration.   3

   (b) Define pointer. How will you declare and
   initialise a pointer? Give example.   1+2+2=5

   (c) Distinguish between dynamic and static
   memory allocation.   2

(2)

Or

(d) What are the basic differences between structure members and class members?   4

(e) Explain the function overloading with an example. What is the use of GOTO statement?   4+2=6

2. (a) Write the two special characteristics of static member function.   2

(b) When will you make a function inline?   2

(c) Write a C++ program to illustrate the use of objects as function argument.   6

Or

(d) What are constructors and destructors? Give examples.   4

(e) Give any five characteristics of friend function.   5

(f) Differentiate between default constructor and parameterized constructor.   1

3. (a) Write a CPP program to overload binary operator +(plus) using operator overloading function.   5

(b) What is a virtual base class? When do we make a class virtual? Explain.   5

(3)

Or

(c) Name and explain different forms of inheritance. 5

(d) What is visibility in inheritance? Explain the role of protected members in inheritance. 2+3=5

4. (a) Explain the three components of STL with a neat diagram. 4

(b) Write an object-oriented program to accept 10 voter records, each record of which consists of four data member values, viz., id_no, name, address and age. The program should also print the details on the output screen. 4

(c) Distinguish between logic error and syntactic error. 2

Or

(d) What are streams? What are different stream classes? Explain. 1+3=4

(e) Explain two file modes. 2

(f) Describe various error-handling functions in file operations. 4

(4)

5. (a) Write an OOP which accepts two numbers from the user and prints the smaller one.   5

    (b) What is an operator function? Describe the syntax of an operator function.   5

Or

    (c) Explain pointers to objects with a suitable program.   8

    (d) What is class template?   2

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(3rd Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA–304

(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 :   1×10=10

    (a) _____ are the basic run-time entities in an object-oriented system.

        (i) Visibility modes   (   )

        (ii) Classes   (   )

        (iii) Objects   (   )

        (iv) Keywords   (   )

(b) Reusability of code is achieved with

    (i) polymorphism   (   )

    (ii) inheritance   (   )

    (iii) encapsulation   (   )

    (iv) constructor   (   )

(c) Which data member of the class is accessible to the outside world?

    (i) Protected   (   )

    (ii) Public   (   )

    (iii) Private   (   )

    (iv) All of the above   (   )

(d) In C++, the operator << is called the _____ operator.

    (i) insertion   (   )

    (ii) extraction   (   )

    (iii) binary   (   )

    (iv) unary   (   )

(3)

(e) The _____ is not itself a member of the class.

    (i)   data member   (   )

    (ii) friend function   (   )

    (iii) inline function   (   )

    (iv) member function   (   )

(f) The keyword _____ is used to preface a block of statement which may generate exceptions.

    (i)   catch   (   )

    (ii) throw   (   )

    (iii) try   (   )

    (v)   hit   (   )

(g) The constructor is called as soon as _____ of the class gets created.

    (i)   an object   (   )

    (ii) a class   (   )

    (iii) function   (   )

    (iv) destructor   (   )

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(h) Run-time polymorphism is achieved by

   (i)   friend function   (   )

   (ii) operator overloading (   )

   (iii) virtual function   (   )

   (iv) function overloading (   )

(i) Which inheritance type is used in the class given—

       Class A : Public X, Public Y ?

   (i)   Hybrid inheritance   (   )

   (ii) Hierarchical inheritance   (   )

   (iii) Multilevel inheritance   (   )

   (iv) Multiple inheritance   (   )

(j) A _____ acts as an interface between the program and the input/output device.

   (i)   stream   (   )

   (ii) template   (   )

   (iii) container   (   )

   (iv) class   (   )

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

$1 \times 5 = 5$

(a) In object-oriented programming, you can perform two different operations through the same operator.

(T / F)

(b) In C++, dynamic memory allocation is accomplished with the operator new().

(T / F)

(c) The keyword 'this' is used to represent an object that invokes a member function.

(T / F)

(d) A 'return' statement can return only value.

(T / F)

(e) Object-oriented programming employs bottom-up approach in program design.

(T / F)

(6)

SECTION—II

(*Marks* : 10)

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

   (a) Distinguish between Procedural programming and OOP.

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

(c) What are various ways of handling exceptions?

(d) What do you mean by generic programming? Give example.

(e) List any two advantages of inheritance.

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