OBJECT ORIENTED PROGRAMMING WITH C++ (SEMESTER - 4)

CS/BCA/SEM-4/BCA-402/09

1. ..... *Signature of Invigilator*

2. ..... *Signature of the Officer-in-Charge*

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/BCA/SEM-4/BCA-402/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

OBJECT ORIENTED PROGRAMMING WITH C++ (SEMESTER - 4)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

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Head-Examiner/Co-Ordinator/Scrutineer

4490 (08/06)

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ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

OBJECT ORIENTED PROGRAMMING WITH C++

SEMESTER - 4

Time : 3 Hours] [Full Marks : 70

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) Friend function cannot overload ..... operator.

a) ++ b) =

c) + d) ✳

ii) Which operator can not be overloaded ?

a) + b) –

c) ++ d) : ?

iii) Operator overloading is an example of

a) runtime polymorphism b) compile time polymorphism

c) both (a) and (b) d) none of these.

iv) The declaration int const ✳ *p* = &*a* signifies *p* as *a*

a) constant pointer b) pointer to an integer

c) pointer to a constant d) none of these.

v) The static member function can manipulate only on

a) global data b) local data

c) private data d) static data.

vi) Base class may be virtual for

a) multiple inheritance b) multilevel inheritance

c) hierarchical inheritance d) hybrid inheritance. ☐

vii) Inline function is

a) used to draw a straight line

b) used to draw a curve line

c) made a request to place the code inline

d) none of these. ☐

viii) Template is used to save the

a) memory space b) programming code

c) variable value d) variable address. ☐

ix) Constructor is used for

a) copy of the objects

b) Initialization of the data members of class

c) Initialization of objects

d) all of these. ☐

x) Which of the following cannot be passed to a function ?

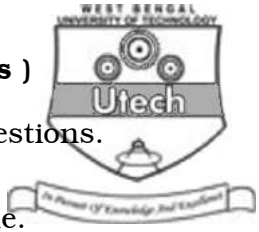
a) Class objects b) Arrays

c) Reference variables d) Header file. ☐

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following questions. 3 × 5 = 15



2. What are objects ? How are they created ? Give example.

3. What is a constructor ? List some of the special properties of the contructor functions. What is a parameterized constructor ?

4. What is an operator function ? Describe the syntax of an operator function.

5. What do you mean by inheritance ? What are the different forms of inheritance ? Give an example of each.

6. What does polymorphism mean in C++ ? How is polymorphism achieved at

   i) compile time

   ii) run time ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions. 3 × 15 = 45

7. a) Write a program that creates a class FLOAT that contains one float data member. Overload { +, – , ∗ , / } all the four arithmetic operators so that they operate on the objects of FLOAT.

   b) What is generic programming ? How is it implemented in C++ ? 8 + 7

8. a) What do you mean by 'this' pointer ? How this pointer acts as an implicit argument to all member function ?

   b) What is Hierarchical inheritance ? Explain ambiguity resolution in multiple inheritances. (2 + 5) + 4 + 4

9. a) What is inline function ? Write down the limitation of inline function.

b) What is a default argument ? Explain the constructor with default arguments.

c) What is function overloading ? (2 + 3) + (2 + 5) + 3

10. a) What is class Templates ? Give example.

b) Write a program to sort *n* data items using templates function.

c) What is virtual class ? 5 + 7 + 3

11. a) What do you mean by exception handling ? Explain with an example.

b) What are the differences between sequential file and random access file ? Write program to create, insert and display elements in random access file. 5 + 10

END

Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-4/BCA-402/2010

2010

OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

   i) Reusage of a function is also called

      a) Method overriding b) Function overriding

      c) Function overloading d) None of these.

   ii) The argument of a copy constructor is passed by

      a) Value b) Reference

      c) Pointer d) Both (a) and (c).

   iii) A template provides a convenient way to make a family of

      a) variables b) function

      c) classes d) programs.

iv) Static members are initialized to

a) 0 b) 1

c) Garbage d) None of these.

v) We can overload a destructor – it is

a) True b) False

c) Can't say d) None of these.

vi) Which of the following operators can be overloaded ?

a) .(dot) b) ::

c) % d) ?:

vii) Tellp () tells the position of

a) File b) Getpointer

c) Putpointer d) Constructor.

viii) C++ is a programming language of type

a) Structured b) Non-structured

c) Procedural d) Module based.

ix) A friend function can be called

a) directly

b) like a general function

c) by using the object of the class

d) should not be called.

x) In an abstract class we can create object.

a) True b) False

c) Can't say d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Can we overload a destructor ? Explain.

3. What is dynamic binding ? When do we use it ? Explain with example.

4. What are the differences between a structure in C and a class in C++ ?

5. What is a constructor ? Explain copy constructor with an example.

6. What is function overloading ? Explain with a simple example.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. What do you mean by Object-Oriented Programming ? Discuss the different properties of an Object-Oriented Programming. 3 + 12

8. What is template ? Why is it used ? Describe different templates. 5 + 10

9. Construct a stack data structure by using a template class. Explain containership with suitable examples. What is the difference between static polymorphism and dynamic polymorphism ? 6 + 4 + 5

10. Write a C++ program to implement a class called "String" for string manipulation. Overload +=, + and = operator, for string append, concatenation and assignment respectively.

5 + 5 + 5

11. Write short notes on any *three* : 3 × 5

a) Multiple inheritance

b) Exception handling

c) Operator overloading

d) Pure virtual function

e) Stream.

Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-4/BCA-402/2011

2011

OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) The declaration int const * *p* = &*a* signifies *p* as a

a) constant pointer

b) pointer to an integer

c) pointer to constant

d) none of these.

ii) The constructor is invoked at the time of

a) creating an object

b) releasing an object

c) calling member function of an object

d) none of these.

iii) The static member function can manipulate only on

a) global data b) local data

c) private data d) static data.

iv) If P and Q are pointers of type int and m is an int type variable, which of the following is legal ?

a) $p - q$ b) $m + p$

c) $p - m$ d) $m - q$.

v) 'cin' is

a) an object b) function

c) class d) none of these.

vi) void is a ..... in C++

a) data type b) function

c) operator d) none of these.

vii) The reinitialization of the object can be by

a) constructor b) destructor

c) copy constructor d) none of these.

viii) Friend class can be declared

a) inside the class b) outside the class

c) both (a) and (b) d) none of these.

ix) All the function defined inside the class specified are inline by

a) auto b) static

c) default d) none of these.

x) Static members are initialized to

a) 1 b) 0

c) garbage d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Explain friend function with proper example. Differentiate between dynamic constructor and copy constructor. 2 + 3

3. What do you mean by abstraction ? Define virtual function with the help of a C++ program. 1 + 4

4. What is "this" pointer ? Differentiate between

   a) local class and global class.

   b) local object and global object. 1 + 2 + 2

5. Differentiate between object oriented programming and procedural programming. 5

6. Explain with the help of examples private, public and protected access Specifiers. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What is manipulator ? Explain multiple inheritance.

   b) When do we need virtual function ? When would you make it pure ?

   c) How would you create space for an array of objects using pointer ? Give example. (2 + 3) + 5 + 5

8. What is class templates ? Give example. Write a program to sort *n* data items using templates function. What is virtual class ? 3 + 3 + 6 + 3

9. What is inline function ? Write down its limitations. What is default arguments ? Explain constructor with default arguments. What is function overloading ? 2 + 3 + 2 + 5 + 3

10. a) What is operator overloading ? Why is it necessary to overload an operator ?

    b) A friend function cannot be used to overload the assignment. Explain why.

    c) Wrtie a program in C++ to overload a binary operator.

    5 + 5 + 5

11. Write short notes on any *three* : 3 × 5 = 15

    a) Asynchronous exception

    b) Hybrid inheritance

    c) Compile time polymorphism

    d) Container class

    e) Overriding.

Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-4/BCA-402/2012

2012

OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) The static member function can manipulate only on
   a) Global data b) Local data
   c) Private data d) Static data.

ii) At the time of compilation, the function body is actually inserted in case of
   a) normal function b) inline function
   c) friend function d) virtual function.

iii) The ability of a function or operator to act in different ways on different data types is called
   a) data hiding b) encapsulation
   c) polymorphism d) data abstraction.

iv) Which of the following operators cannot be overloaded by friend function ?

a) + b) <

c) = d) /

v) To convert from a basic type to a user-defined class, you would most likely use

a) a built-in conversion function

b) a one-argument constructor

c) an overloaded = operator

d) a conversion function that's a member of the class.

vi) void *f* (int *a*, int *b*, int *c*) ;

Which of the following statements is true ?

a) Default value for argument *b* can be set if and only if argument *c* also has a default value

b) Default value for argument *b* can be set if and only if argument *a* also has a default value

c) Default value for argument *b* can be set if and only if both arguments *a* and *c* have default values

d) Default value for argument *b* can be set even if neither argument *a* nor argument *c* have default value.

vii) A friend function can be used to

a) avoid arguments between classes

b) allow one class to access an unrelated class

c) increase the versatility of an overloaded operator

d) both (b) and (c).

viii) Scope resolution operator usually

a) limits the visibility of variables to a certain function

b) specifies a particular class

c) resolves ambiguities

d) both (b) and (c).

ix) Exception Handling handles

a) compilation time error

b) run time error

c) both (a) and (b)

d) neither (a) nor (b).

x) An inline function executes ..... than a normal function, but requires ..... memory.

a) slower, more b) faster, less

c) faster, more d) slower, less.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Can we overload a construction ? Explain.

3. What is message binding ? When do we use it ? Explain with example.

4. What is copy constructor ? Explain with an example.

5. What is operator overriding ? Explain with an example.

6. What are the differences between procedure oriented language and object oriented language ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What is Operator overloading ? 5

   b) Define a class string. Use overloaded + operator to concatenate two strings. 10

8. a) What is Template ? What is function template ? Write a program showing the use of function template.

   b) What is this pointer ?

9. a) What is *static data member* ? Explain with the help of an example. 7

   b) What are the different forms of inheritance ? Give an example for each. 8

10. a) What is the difference between opening a file with a constructor function and opening a file with open( ) ? When is one method preferred over the other ? 7

    b) Write a program that reads a text file and creates another file that is identical to it. 8

11. Write short notes on any *three* of the following : 3 × 5

    a) Scope resolution operator

    b) Exception handling

    c) Abstract class

    d) Stream

    e) Data hiding.

Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-4/BCA-402/2013

2013
OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

i) Friend function cannot overload ..... operator.

a) ++ b) *

c) = = d) +

ii) Which of the following enables the code reusability ?

a) Function overloading b) Inheritance

c) Exception handling d) Template.

iii) Which operator cannot overload ?

a) + b) ?

c) ++ d) –

iv) The static member function can manipulate only on

a) Global data b) Local data

c) Private data d) Static data.

v) Function Overloading is an example of

a) Runtime polymorphism

b) Compile time polymorphism

c) Pointer to a constant

d) None of these.

vi) Template is used for

a) Memory space

b) Programming language

c) Variable value

d) Variable address.

vii) Constructor can return value

a) Not always true b) Always true

c) Never true d) None of these.

viii) When a function call itself is called

a) Inline function b) Virtual function

c) Recursive function d) None of these.

ix) To make any value constant in C++ we use

a) Statical b) Const

c) Virtual d) all of these.

x) Which one of the following is an access specifier ?

a) Private b) Virtual

c) Static d) None of thses.

xi) Namespace is a

a) Declarative Region b) Virtual Class

c) Property of C++ d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. When do we make a virtual function "public" ? What are the implications of making a function pure virtual function ?
3. Bring out the difference between classes and structures in C++.
4. What is pointer arithmetic ? How is it performed ? Support your answer with an example.
5. Neatly explain constructor and destructor with suitable examples.
6. What is manipulator ? What do you mean by type cast operator ? What is copy constructor ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Differentiate between macros and functions. 5

   b) When should one use references, and when should I use pointers ? 5

   c) Explain Function overloading with simple examples. 3

   d) What do you mean by new and delete operators ? 2

8. a) What is the order that local objects are destructed ? 5

   b) What is the significance of access specifiers in a class ? 3

   c) Explain the role of file iostream.h in C++. 3

   d) Explain the difference between prefix and postfix incremental operator. 4

9. a) What is File handling in C++ ?

   b) What is Stream Class ? Describe the stream class levels in C++ with the diagram.

   c) What is the difference between private and public member variables ?

   d) Define Friend class with an example. 3 + 2 + 3 + 2 + 5

10. a) What are the differences of C and C++ ? What is Class in C++ ?

    b) What do you mean by data hiding and data abstraction and how is it implemented in C++ ? 4 + 2 + 2 + 7

11. Write a short note on any *three* of the following : 3×5

    a) Template Class

    b) Abstract Class

    c) Operator Overloading

    d) Sequential and Random Access file.

    e) Overloading of [] operator.

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BCA-402

OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours | *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) Which of the following is not a feature of OOPS ?

      a) **Encapsulation**

      b) Inheritance

      c) Static Binding

      d) Polymorphism.

   ii) If a class contains at least one pure virtual function then the class is called

      a) Virtual base class

      b) Abstract base class

      c) Both (a) and (b)

      d) None of these.

iii) Which of the following statement is correct ?

a) Destructor has a default value

b) Destructor takes an argument

c) Destructor deallocates memory

d) None of these.

iv) The argument of a copy constructor is passed by

a) Value

b) Reference

c) Pointer

d) Both (a) and (b).

v) Operator overloading is an example of

a) Compile time polymorphism

b) Run-time polymorphism

c) Both (a) & (b)

d) None of these.

vi) Identify if any error is present in defining operation for overloading ++ operator for post-increment using member function : operator++()

a) parameter should be present

b) discriminator 'int' should be present

c) both (a) and (b)

d) none of these.

vii) Friend function cannot overload ..... operator.

a) ++ b) *

c) == d) +

viii) Which of the following class constructors will be invoked first ?

a) Virtual Base class

b) Base class

c) Abstract class

d) Derived class.

ix) Which STL component defines how data will be stored ?

a) Algorithm b) Iterator

c) Container d) All of these.

x) In private inheritance, public members of the base class become ..... members of the derived class.

a) Public b) Private

c) Protected d) None of these.

xi) In declaration class test { int x; }; x is what type of member ?

a) Public b) Private

c) Protected d) None of these.

xii) The ambiguity in multiple inheritance can be resolved by

a) virtual function

b) function overriding

c) using scope resolution operator to call member function

d) both (b) and (c).

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Describe with example how run time polymorphism is achieved.

3. Explain the use of inline function. What are the limitations of inline function ? 3 + 2

4. How are data members allocated in memory for objects of a class ? Show how 'Static' data members work with an example. 2 + 3

5. What is the functionality of try, throw and catch statements in exception handling ? What is virtual destructor and why is it used ? 3 + 2

6. Write a program in C++ to copy the contents of a two-columnar file to another such that the first column is left justified and the second one is right aligned in the output file.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What do you mean by data hiding in C++ ?

   b) Show array of object with an example.

   c) Why 'Friend' functions cannot be defined inside a class definition ?

   d) Write a C++ program to show 'setw' manipulator.

   $3 + 5 + 3 + 4$

8. a) Write a program in C++ to calculate a^b, where if only a is passed to the function, it calculates a^2 and if a and b both are passed then it calculates a^b.

   b) Write a program in C++ to demonstrate insert and delete operations in a queue using Standard Template Library. Also display the contents of the queue.

   c) When does ambiguity occur in multiple inheritance ? How can it be resolved ? Explain with example. $5 + 5 + 3 + 2$

9 a) Write a C++ program to overload member function 'area ()' of a class shape to find the area of

(i) Circle

(ii) Rectangle

(iii) Square.

b) Define Abstract Class. Why do we need Abstract Base Class ? (3 × 3) + (3 × 2)

10. a) Design a class 'employee' that contains id, name and salary. Use proper input to initialize values of data members. Create multiple objects of employee. You are also required to count the total number of employees.

b) Consider a banking system that consists of class Account with data members Acc No., Name and Balance. Define a member function withdraw () for withdrawal of amount. Write a program in C++ to generate an exception for overlimit withdrawal.

c) What is 'casting operator function' ? Show class to class type conversion with 'casting operator function'. 5 + 5 + 5

11. Write short notes on any *three* of the following . 3 × 5

a) Exception handing

b) Structured programming & object oriented programming

c) Multiple inheritance

d) Derived class constructor

e) Sequential & Random access file

f) Data abstraction & Data hiding.