(Please write your Exam Roll No.) Exam Roll No. 03021402013

END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER 2014

Paper Code: BCA209 **Subject: Object Oriented Programming Using C++ (Batch: 2011 onwards)**

Time : 3 Hours **Maximum Marks :75**

Note: Attempt any five questions including Q.no.1 which is compulsory.

Q1 Answer the following:-
(a) Explain encapsulation and data hiding features of C++. (2)
(b) Explain the persistent objects in C++. (2)
(c) Explain garbage collection in C++. (2)
(d) Explain ambiguity in multiple inheritances. (3)
(e) Compare meta class and abstract class. (2)
(f) Explain multiple catch statement used in exception handling. (2)
(g) Compare macros and inline functions. (2)

Q2 (a) Explain the features of procedure oriented programming. (5)
(b) Explain the features of C and C++ programming languages. (5)
(c) Compare features of various C++ compilers. (5)

Q3 (a) Write a program to illustrate new and delete operators in C++. (6)
(b) Explain *this* pointer. Give an illustration. (4)
(c) Write a program to illustrate static function and static variable in a class. (5)

Q4 (a) Write a C++ program to illustrate Friend Class. (5)
(b) Write a program to illustrate operator overriding. (6)
(c) Explain parametric polymorphism. (4)

Q5 (a) Write a C++ program to overload the following operators:- (6)
(i) --
(ii) ++
(iii)!=
(b) Write a C++ program to illustrate overloading of template functions. (6)
(c) Explain early binding and late binding. (3)

Q6 (a) Write a program to illustrate error handling in file operations. (5)
(b) Explain the working of exception handling in C++. (5)
(c) Write a C++ program to illustrate virtual base class. (5)

Q7 Write short notes on **any three** of the following:- (5x3=15)
(a) Class aggregation
(b) Virtual function
(c) STL libraries in C++
(d) Namespace
(e) Generic programming

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END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER-2015

Paper Code: BCA 209 ***Subject: Object Oriented Programming Using C++ (Batch: 2011 onwards)***

Time : 3 Hours ***Maximum Marks :75***

Note: Attempt any five questions including Q.No. 1 which is compulsory. Internal choice is indicated.

Q1. Attempt the following: **(2.5x10=25)**

a) Merits and Demerits of C++

b) What is an object? Explain with an example.

c) What is a class? Explain different access modifiers in a class

d) Abstract class

e) Container class

f) This pointer

g) Static data members and member functions

h) Encapsulation

i) Data hiding

j) Polymorphism

Q2. a) Difference between object oriented programming and procedure programming and also explain the structure of C++. **(4)**

b) What is virtual function? Write rules for virtual function. Explain with example. **(4)**

Merits & Demerits of Friend Functions.

c) What is a friend function? ~~Write rules for virtual function~~. Explain with example. **(4.5)**

OR

Q3. a) What is inline member function? Why we declare a member function as inline. Explain with example. **(4)**

b) Explain function prototyping with example. **(4)**

c) Explain function overloading with example. **(4.5)**

Q4. a) What is Constructor? Explain various types of Constructor with example. **(4)**

b) Explain composition v/s classification hierarchies? **(4)**

c) Explain following with respect to C++ with examples: - **(4.5)**
i) new operator ii) destructor

OR

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Q5. a) Give a programming example that overloads== operator with its use. **(4)**

b) Which operators cannot be overloaded? Write steps to overload + operator so that it can add two complex numbers. **(4)**

c) What does inheritance means in C++? What are different forms of inheritance? Give an example of each. **(4.5)**

Q6. a) What are the differences between pointers to constant and constant pointers? **(4)**

b) List and explain in brief various functions required for random access file operations. Illustrate with an example, how 'endl' and 'setw' manipulator works. **(4)**

c) What is the difference between opening a file with constructor and opening a file with open () function. **(4.5)**

OR

Q7. a) Explain with example how can a template class be created. **(4)**

b) Explain Generic function and Generic class. **(4)**

c) What is Exception handling? Explain types of exception handling and explain suitable examples. **(4.5)**

Q8. a) In what way destructor is different from a delete operator? Explain with example. **(4)**

b) Write a short note on type casting? Explain with example. **(4)**

c) Define Namespaces? Explain with example. **(4.5)**

OR

Q9. a) Briefly discuss different techniques of using polymorphism in C++. Explain. **(4)**

b) What are the functions available in C++ to manipulate the file pointers? Explain. **(4)**

c) What are the different data types available in C++? Explain. **(4.5)**

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END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER 2016

Paper Code: BCA-209 **Subject: Object Oriented Programming Using C++**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each Unit.

Q1 Explain briefly the following: **(10x2.5=25)**

(a) Differentiate between OOP and Procedural programming
(b) Pure virtual function
(c) Inline functions
(d) Garbage Collection
(e) Early v/s Late Binding
(f) Nested Classes
(g) This pointer
(h) Static data member
(i) Copy constructor
(j) Protected keyword

Unit-I

Q2 (a) Define encapsulation and prove how it allows us to achieve data Hiding giving an example code. **(6.5)**

(b) Why did people change over from structured programming to object oriented programming? **(6)**

Q3 (a) Describe the usage of const in C++. **(3)**

(b) Explain the use of volatile keyword in C++. **(3.5)**

(c) How input and outputs are taken/displayed in C++? Differentiate between the input and outputs operators in C and C++. **(6)**

Unit-II

Q4 (a) What is meant by dynamic initialization of objects? Why is it needed? How is it accomplished? Illustrate. **(6)**

(b) Create a String class to create empty strings or create strings from other strings passed as argument to its constructor. Memory allocation for creation and disposal of strings will be dynamic. The string class will have one char pointer to point the string and member length to hold the length of this string. Write the Constructor and destructors for this class. Show () method to print the strings right aligned on the screen. **(6.5)**

Q5 (a) What is the principal reason of passing arguments by references? Explain with the help of example. **(6.5)**

(b) Create a time class to perform following operations over time (hh:mm:ss) using 24 hrs clock. To create or initialize any object of type time using constructors. To print the time in the format hh:mm:ss. **(6)**

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Unit-III

Q6 (a) WAP to overload binary + operator to concatenate two objects of user defined class String. **(6)**

(b) Discuss various ambiguities in Multiple Inheritance and also explain how they can be overcome in C++. **(6.5)**

Q7 (a) Consider an example of declaring the examination result. Design three classes: Student, Exam and Result. The student class has data members such as those representing the roll number, name etc. Create the class Exam by inheriting the student class. The Exam class adds data members representing the marks scored in six subjects. Derive the Result from Exam class and its own data members such as total_marks. Write an interactive program to model this relationship. **(7.5)**

(b) Explain the concept of function overloading. Write a program to demonstrate function overloading for function swap () to swap values corresponding to different data types using C++ code. **(5)**

Unit-IV

Q8 (a) Define generic function and generic class, also give their syntax. **(6.5)**

(b) Write a template class to sort n items in descending order. The values should be entered by user. **(6)**

Q9 (a) Explain how compiler processes call to class template. **(6)**

(b) Can we have template class with more than one type of argument? Explain with help of an example. **(6.5)**

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOVEMBER-DECEMBER 2018

Paper Code: BCA-209 Subject: Object Oriented Programming Using C++

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.No1 which is compulsory. Select one question from each unit.

Q1 Answer the following:- (10x2.5=25)

(a) Explain data hiding and encapsulation with an example.
(b) Compare the features of C and C++.
(c) Explain the features of macros and inline functions.
(d) Give the syntax of defining a class.
(e) Explain various types of inheritance.
(f) Compare the features of early binding and late binding.
(g) Explain virtual base class with an illustration.
(h) Explain the features of generic programming.
(i) Explain namespace. Give an example.
(j) Explain various types of exceptions.

UNIT-I

Q2 (a) Compare the feature of structured programming language and object oriented programming language. (4)

(b) Explain the features of inheritance and exception handling used in object oriented programming languages. (4.5)

(c) Explain the features of C++ environment: (4)

i. C++ Compilers
ii. Testing a C++ program

OR

Q3 (a) Write a C++ program to illustrate the use of new () and delete () operators. (4.5)

(b) Explain various types of polymorphism. (4)

(c) Mention any four standard libraries used in C++. (4)

UNIT-II

Q4 (a) Write a C++ program to illustrate the default constructor, parametric constructor and copy constructor. (4.5)

(b) Explain the role of friend functions in C++. (3.5)

(c) Explain the following:- (4.5)

i. Abstract class and meta class
ii. Data members and member functions
iii. This pointer

OR

Q5 (a) Explain function overloading with an example. (4)

(b) Explain the role of constructors and destructors in C++. (3.5)

(c) Write a C++ program to illustrate the following:- (5)

i. Call by value
ii. Call by reference

UNIT-III

Q6 (a) Write a C++ program to illustrate the following: (i) overloading of member functions and (ii) overriding of member functions. (6)

(b) Write a C++ program to illustrate virtual functions. (4.5)

(c) Give an example to illustrate aggregation and composition. (4)

OR

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P 1 /

Q7 (a) Explain the access mechanism of public, private and protected related to inheritance. (4.5)

(b) Explain how to resolve ambiguity in multiple inheritances with an example. (3)

(c) Write a C++ program to illustrate the following:- (5)

i. Overload binary operator

ii. Overload unary operator

UNIT-IV

Q8 (a) Write a C++ program to illustrate the following stream functions: is_open (), get() and put().

(b) Write a C++ program to illustrate overloading of template functions. (5)

(c) Explain the features of persistent objects. Give an example. (4)

(3.5)

OR

Q9 (a) Give the syntax of write () and read () functions using in file streams. (4)

(b) Explain the template functions with an example. (4)

(c) Write a C++ program to illustrate try, throw and catch statements. (4.5)

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOV.-DEC. - 2019

Paper Code: BCA209 **Subject: Object oriented programming Using C++**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

Q1 Answer **any five** the following:- (5x5=25)

a) Explain the use of new and delete operator using example.
b) Explain namespace with example.
c) What is this pointer? Explain with example.
d) Explain Stream classes for file operations.
e) Explain aggregation in OOP with example.
f) Differentiate between compile time and runtime polymorphism.

UNIT I

Q2. a) What are features of Object Oriented Programming? (5)
b) Explain difference between Procedural Programming and Object Oriented Programming. (4)
c) Explain different C++ compilers. (3.5)

OR

Q3. a) What is difference between C and C++? (5)
b) Explain C++ standard Libraries. (4)
c) What are different applications of OOP? (3.5)

UNIT II

Q4. a) What are C++ abstract classes? Explain with example. (5)
b) Write C++ program to illustrate constructor overloading. (4)
c) What is difference between constructor and destructor? (3.5)

OR

Q5. a) What are friend functions? Illustrate with code. Why they are not preferred? (5)
b) What is copy constructor? Explain with example. (4)
c) Explain data hiding and encapsulation with example. (3.5)

UNIT III

Q6. a) Explain difference between Private, Public and Protected Access Mechanism with respect to Inheritance. (5)
b) What are different types of Inheritence? (4)
c) Write a code to overload Unary operator. (3.5)

OR

Q7. a) What is difference between early an late binding? (5)
b) Explain Virtual base class with suitable example? (4)
c) Write a code to overload binary '+' operator? (3.5)

UNIT IV

Q8. a) How is an exception handled in C++? (5)
b) What is generic programming? How it is implemented in C++? (4)
c) Explain and write syntax of put() and get () functions. (3.5)

OR

Q9. a) What are steps involved in using a file in a C++ program? (5)
b) Write a C++ code to implement Command Line Argument? (4)
c) What are different types of exceptions? (3.5)

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END TERM EXAMINATION

THIRD SEMESTER [BCA] JANUARY-FEBRUARY 2023

Paper Code: BCA 205 **Subject: Object Oriented Programming with C++**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt five questions in all including Q.No.1 which is compulsory. Select one question from each unit.

Q1. Write the short note on the following:- (2.5X10=25)

(a) Inline function
(b) Describe the various benefits of OOP.
(c) New Vs Delete
(d) Static data member
(e) Copy constructor
(f) Virtual base class
(g) Friend function
(h) Class template
(i) This pointer
(j) Early Vs Late binding

UNIT-I

Q2. (a) Explain the following terms: (4)
(i) Literals (ii) Implicit conversion
(b) Write a program that will find out whether the given number is even or odd.
If it is odd number then find out whether it is prime or not? (3.5+5=8.5)

Q3. (a) Illustrate the comparison between C and C++. (4.5)
(b) Describe the concepts of parameter passing by value, reference and pointer with the help of an example. (8)

UNIT-II

Q4. (a) Explain the concept of constructor overloading and function overloading. (6)
(b) What do you understand by access specifiers? What are these access specifiers? (6.5)

Q5. (a) Define a class Teacher with the following specifications: (10)

Private members:
Name 20 characters
Subject 10 characters
Basic, DA, HRA float
Salary float
Calculate ( ) function computes the salary and returns it. Salary is sum of Basic, DA and HRA

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Public members:
Readdata ( ) function accepts the data values and invokes the calculate function.
Displaydata ( ) function prints the data on the screen.
(b) What are the special properties of a constructor? **(2.5)**

UNIT-III

Q6. (a) How can a data member and member function present in public mode in class be accessed through pointer object? Explain it by taking an example. **(6)**
(b) Create class COMPLEX and overload binary + operator to add objects. Using friend functions. **(6.5)**

Q7. Define an inheritance and its advantage? Explain the types of inheritance. **(2.5+10=12.5)**

UNIT-IV

Q8. (a) What do you mean by generic programming? Write a program to swap the any two different types of variables using function template. **(2+4=6)**
(b) Create a class Stack that throws Overflow and Underflow exceptions. **(6.5)**

Q9. (a) Explain the following terms: **(6)**
(i) seekg () (ii) getline () (iii) write ()
(b) What is the file access mode? Describe the various file modes. **(6.5)**

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