Pre-University Examination subject wise paper collection

◢ OOP in C++

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POKHARA UNIVERSITY

Level: Bachelor   Semester : Spring   Year : 2023
Programme: BE   Full Marks: 100
Course: Object Oriented Programming in C++   Pass Marks: 45
                                                         Time : 3hrs.

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

1. a) Explain non-linear behaviour of complexity. How is OOP different from POP? Justify with points.   7

OR

Define Responsibility Driven Design. Demonstrate the significance of CRC in OOP with an example.

    b) What shortcomings of structure are solved by classes? Explain different types of constructors available in C++ with their use.   8

2. a) Does the friend function breach Data hiding? Justify. Write a program to swap the values of variables of two classes using friend function.   8

    b) How is DMA better than SMA? Justify your answer. Explain how new and delete operators are used in DMA.   7

3. a) Define static member. Write a program to illustrate the use of static members and static member function.   7

    b) How inheritance increases the reusability of codes? Explain different types of inheritance with suitable diagram and syntax.

4. a) What is diamond problem in inheritance? Explain how this problem can be solved with suitable programming example.

    b) Define two ways of converting one user defined data type to another user defined type. Write a program that convert kilogram into gram using user define to user define data conversion. (1kg=1000gm).   8

OR

WAP to find the sum of two 3×3 matrix by overloading binary operator +.

5. a) What do you mean by virtual function? Write a program to show the use of virtual function to achieve runtime polymorphism.   7

1

b) Why is generic programming beneficial? Explain template function and class template with syntax.   8

6. a) Define Exception handling. Does C++ support multiple catch? Illustrate with suitable programming example.   7

b) Write a program that stores object of student class (assume data members are roll, name and university_-name) into a file and read values from the file and display the data in console.   8
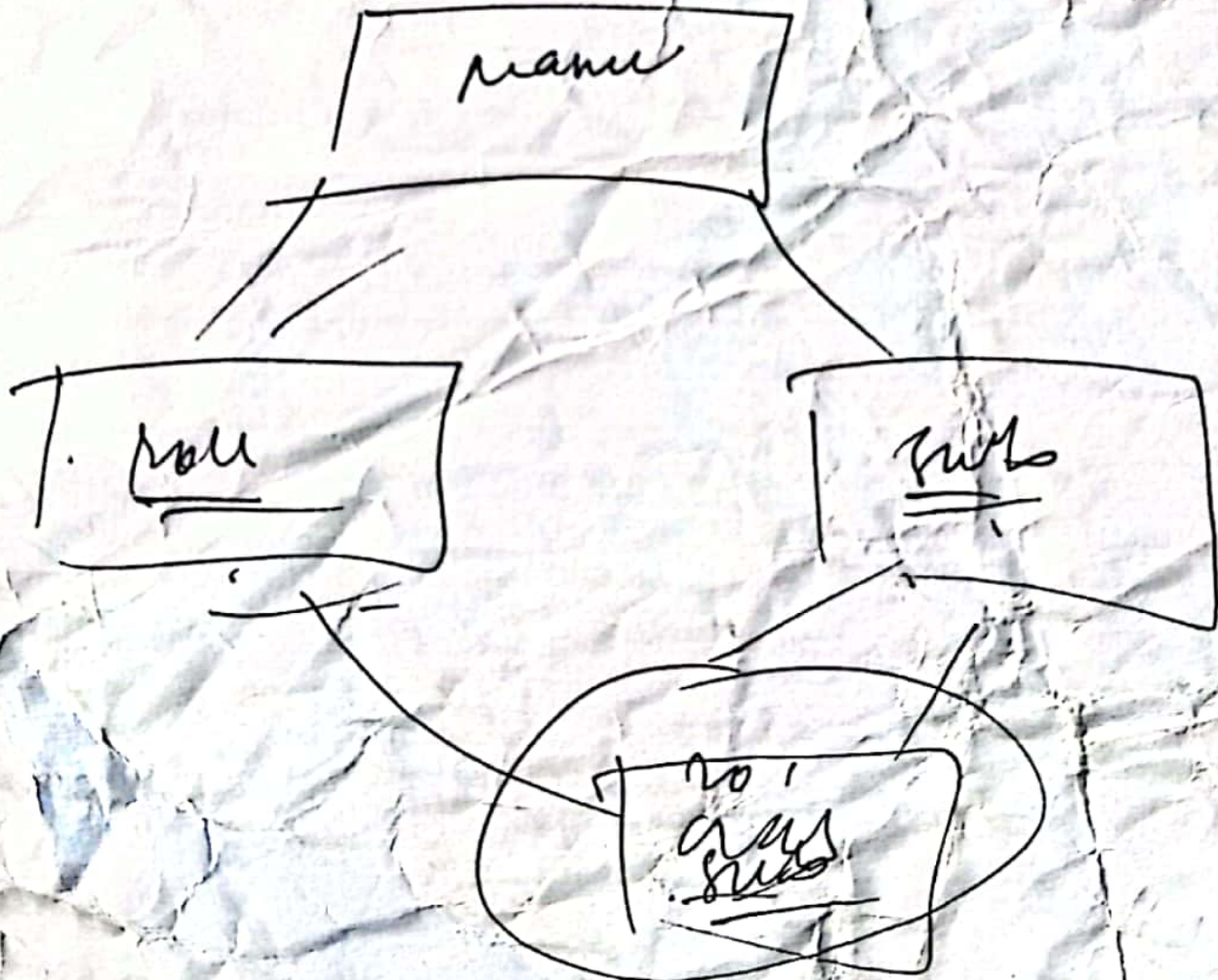
7. Write short notes on: (Any two)   2×5

     a) STL

     b) Use of this pointer

     c) OOAD

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POKHARA UNIVERSITY
SCHOOL OF ENGINEERING

Level: Bachelor
Programme: BE
Course: Object Oriented Programming in C++

Year : 2023
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

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

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is object-oriented programming? Explain the concept of OOAD in detail. **8**

   b) Explain the benefits of developing classes using inheritance rather than developing each new class from scratch? Differentiate between composition and inheritance. **7**

2. a) Define abstract class. Explain interface and implementations with suitable programming example. **8**

   b) Define constructor. Differentiate between constructor and destructor with suitable programming example. **7**

3. a) Create classes called class1 and class2 with each of having one private member. Add member function to set a value (say setvalue) on each class. Add one more function max () that is friendly to both classes. max() function should compare two private member of two classes and show maximum among them. Create one-one object of each class then set a value on them. Display the maximum number among them. **8**

   b) What is the purpose of using access specifier? Describe all access specifier available in c++. **7**

4. a) Create a class "Box" with attributes length, breadth and height. Write a program to append an object of class box to the file named Box.txt and also to retrieve information of all boxes whose area is greater than 55 square unit. written in this file. **7**

   b) Implement the following hierarchy: **8**
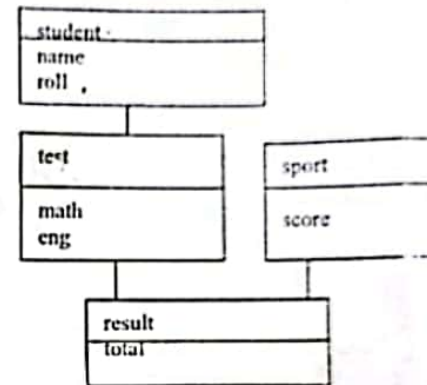
   Assume necessary functions yourself. Write main program to test your class.

5. a) What do you mean by virtual base class? At which condition it has to be implemented? Explain it with suitable example. **8**

   b) Define operator overloading. Write a program to subtract two complex number by overloading - operator. The operator function should be defined outside the class. **7**

6. a) Create a template function two find the attrition of two matrix of type int and float. **6**

   b) Define polymorphism. Differentiate between compile time and runtime polymorphism. **9**

7. Write short notes on any two: **2×5**

   a) RDD

   b) Message passing versus procedure call

   c) Exception handling

Level: Bachelor   Semester: Spring   Year: 2024
Programme: BECE(DAY)   Full Marks: 100
Course: Object oriented Programming in C++   Pass Marks: 65
Time: 3 hrs.

Those who fail in assessment exam should submit the same question solving each question five times to pass in internal exam.

Attempt all the questions.

1. a) Explain about Non-linear behavior of Complexity. What is the use of abstraction mechanism in C++? Explain with example. **7**

   b) What is object orientation? Explain the difference between structured and Object oriented Programming approach. **8**

2. a) Explain about static data member and static member function with suitable example of each. **8**

   b) "Friend function breaches the encapsulation." Justify. Also mention the use of friend function With suitable example program. **7**

3. a) "A constructor is a special member function that automatically initializes the objects of its class", support this statement with a program of all types of constructors. Also enlist the characters of constructors. **8**

   b) During the time of hybrid inheritance when there is hierarchical inheritance at the upper level and multiple inheritance at lower level, ambiguity occurs due to the duplication of data from multiple path at the grand child class. How this kind of ambiguity is resolved? Explain with suitable example? **7**

4. a) Explain about public, private and protected inheritance mode with suitable example program. **7**

   b) Write a program to overload binary plus(+) to concatenate two strings, and equality operator (==) to compare two string. **8**

   Or

   what is compile time and runtime polymorphism? Write a program to add two complex number using binary operator overloading.

5. a) What do you mean by type conversion? Write a program to convert object in polar class to object of rectangle class using type conversion routine. **8**

   Or

   What is function template? Write a program to overload function template to find maximum of two numbers and maximum of three numbers. **7**

   b) Define Virtual function explain with suitable example.

   or

   what is abstract class? Explain with example program.

6. a) What is exception? Describe Exception handling in C++ With example. **7**

   Or

   Create a class Mountain with data members name, height, location, a constructor that initializes the members to the values passed it to its parameters, a function called CmpHeight() to compare two objects and DispInf() to display the information of mountain. In main create two objects of the class mountain and print the information of the mountain which is greatest height

   b) Write a program to input 40 students record and write it to student.txt file. Read from the file and display the records of students whose GPA is above 3.0. **8**

   or

   Create a class person with data members name, age and address. Create another class teacher with data members Qualification and department .Also create

another class Student with data members program and semester. Both class are inherited from class person. Every class has at least one constructor which uses base class constructor. Create member function showdata() in each to display the information of the class member

7. Write short notes on: (Any two)   2×5
   a) Dynamic Memory Allocation
   b) this pointer
   c) Destructor

POKHARA ENGINEERING COLLEGE
Internal Assessment Examination :2024
Semester – Spring

Level: Bachelor
Programme: Computer
Course: OOP in C++

Year
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

5.

6

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

1. a) Explain why Object oriented Programming is superior than procedural oriented Programming. **7**

   b) What are the merits and demerits of friend function? Create two classes First and Last, each has one private members and a function member getdata(). Make both the classes as friend class and display both the data by both the classes. Make necessary functions and objects as required to support your program. **2+6**

2. a) Create a class Person with data members: name, age and address. Create another class Teacher with data members: qualification and department. Also create another class Student with data members: programs and semester. Both classes are inherited from the class Person. Every class has at least one constructor which uses base class constructor. Create member function showdata() in each to display the information of the class member. **7**

   b) What do you mean by binary operator overloading? WAP to find the sum and difference of any two complex numbers by overloading '+' and '-'operator. **2+6**

3. a) What is constructor? WAP to find the area of triangle (when its sides are given) using the concept of parameterized constructor. **2+5**

   b) How do you solve ambiguity in multipath inheritance? Explain with sample program. **6+2**

4. a) What is Exception? How can we handle exception in C++? Explain with example. **2+5**

   b) What are the advantages of using templates? WAP using function template, to accept two integers and display the sum and average, **8**

and also two floating numbers and display the sum and average.

a) Write a complete program to convert the polar co-ordinates into rectangular coordinates.(Hint: polar co-ordinates (radius, angle) and rectangular coordinates(x, y) where x= rcos(angle) and y= rsin(angle). 8

b) Draw Class diagram for library management system. 7

a) Write a program to implement pure polymorphism. 7

b) Create a class called book having a member name, price, author and pages. Create a file called ''Library.docx'' and store record of 100 books. Now, read the file to print the information of the books which has 500 pages. 8

Write short notes on **any two**: 2×5

a) STL — container Algorithm Iterator

b) Stream class Hierarchy

c) DMA

LUMBINI ENGINEERING COLLEGE (LEC)
Final Internal Exam

Level: Bachelor

Program: BE Computer 2nd Semester

Course: Object oriented in C++

Attempt all the questions.

Year: 2080

Full marks: 100

Pass marks: 45

Time: 3 hrs.

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

1.a) How can you say that OOP is a new paradigm in Software development? Explain with features of OOP. (7)

b) Briefly explain about the abstraction mechanism used OOP. (8)

2. a) When will you make a function inline? How does an inline function differ from a preprocessor macro? Explain with suitable example. (7)

b) Can you overload the constructor? If yes explain with an example program. (8)

3.a) Explain dynamic memory mgt. with memory map diagram? Write a C++ program demonstrating the usage of new and delete operators for single variable as well as array. (7)

b) Design three classes student, test and result, where result is inherited from test and test is inherited from student. Write possible functions to initialize the values. Also write a main function for execution by creating objects. (8)

4. a) How a constructor varies from normal member function? In what order are class constructor and destructor called when a derived class object is created? Illustrate with an example.(8)

b) What do you mean by RDD? What are the uses of CRC card? (7)

5. a) "Overloading is a type of polymorphism". Elaborate the given statement with the help of suitable example using the concept of function overloading. (8)

b) Do you agree that Generics is multi-Purpose programming? Give your opinion. Also explain function template and class template with appropriate example. (7)

6. a) Explain the role of a default constructor? When is it considered equivalent to a parameterized constructor? Support your answer with examples.. (8)

b) Briefly explain about the file handling mechanism used in C++. (7)

7. Write short notes on any two   (2X5)
   a. Role of Static members in oops.
   b. Message Passing
   c. Access Specifiers

LUMBINI ENGINEERING COLLEGE (LEC)
Final Internal Exam

Level: Bachelor

Program: BE Computer 2nd Semester

Course: Object oriented in C++

Attempt all the questions.

Year: 2081

Full marks: 100

Pass marks: 45

Time: 3 hrs.

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

1.a) How can you say that OOP is a new paradigm in Software development? Explain with features of OOP. (7)

b) Briefly explain about the abstraction mechanism used OOP. (8)

2. a) When will you make a function inline? How does an inline function differ from a preprocessor macro? Explain with suitable example. (7)

b) Can you overload the constructor? If yes explain with an example program. (8)

3.a) Explain dynamic memory mgt. with memory map diagram? Write a C++ program demonstrating the usage of new and delete operators for single variable as well as array. (7)

b) Design three classes student, test and result, where result is inherited from test and test is inherited from student. Write possible functions to initialize the values. Also write a main function for execution by creating objects. (8)

4. a) How a constructor varies from normal member function? In what order are class constructor and destructor called when a derived class object is created? Illustrate with an example.(8)

b) What do you mean by RDD? What are the uses of CRC card? (7)

5. a) "Overloading is a type of polymorphism". Elaborate the given statement with the help of suitable example using the concept of function overloading. (8)

b) Do you agree that Generics is multi-Purpose programming? Give your opinion. Also explain function template and class template with appropriate example. (7)

6. a) Explain the role of a default constructor? When is it considered equivalent to a parameterized constructor? Support your answer with examples.. (8)

b) Briefly explain about the file handling mechanism used in C++. (7)

7. Write short notes on any two (2X5)

a. Role of Static members in oops.   b. Message Passing   c. Access Specifiers

NEPAL ENGINEERING COLLEGE
Changunarayan, Bhaktapur
(Assessment Fall Semester 2023)

Level: Bachelor
Program: BE
Course: Object Oriented Programming in C++

Full Marks: 100
Pass Marks: 45
Time: 3hrs.

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

Attempt all the questions.

1. a) Explain the features of object oriented programming language. Differentiate it with procedure oriented programming language (pop). [5+3]

    b) Why "responsibility implies noninterference" is needed in OOP, explain? Design a CRC card for Student Information System. [3+4]

2. a) What are different access specifiers available in C++? Explain with an example. [5+2]

    b) How can we achieve Dynamic Memory Allocation in C++.Write a program to concatenate two strings implementing Dynamic Memory Allocation . [3+5]

3. a) Define friend function. Write a program to add two complex numbers using friend function. [3+4]

    b) During the times of hybrid inheritance when there is hierarchical inheritance in the upper level and multiple inheritances at lower level, ambiguity occurs due to the duplication of data from multiple paths at grandchild class. How this kind of ambiguity is resolved? Explain with suitable example with Inheritance Relationship diagram. [4+4]

4. a) Define Container Class. Write a program implementing "has-a" relationship for storing Vehicle Information it should have the following information like vehicle model, Vehicle Color, Engine no, Engine Cylinder Number [2+5]

    b) What is polymorphism? How can polymorphism be achieved during compile time and during runtime? Explain with example. [3+5]

5. a) Define Type Conversion. Explain with example the conversion from one class type to another class type. [7]

    b) Define Generic Programming .Write a program to swap two numbers using class template [8]

6. a) Explain exception handling mechanism in C++ with an example. [7]

    b) With suitable diagram explain stream class hierarchy. What are different modes used in file handling. Illustrate with an example for opening and closing a file. [3+5]

7. Write Short Notes on any Two [10]
    a. Inheritance Vs. Composition
    b. Virtual Destructor
    c. Standard Template Library(STL)

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

Attempt all the questions.

1. a) Why OOP is preferred over POP. Explain the features of OOP.   8
   b) Define Responsibility Driven Design. Demonstrate the significance of CRC in OOP with an example.   7

2. a) What shortcomings of structure are solved by classes. Explain different types of constructors available in c++ with their use.   8
   b) Does friend function breach Data hiding? Justify. Write a program to swap the values of variables of two classes using friend function.   7

   OR

   a) Do c++ have two destructors in class? write a program to add two complex numbers using concept of constructors.   7
   b) What is dynamic memory allocation? How do you allocate memory dynamically in C++? Explain with an example?   8

3. a) Define Virtual Function. How do you achieve the Run time polymorphism. Illustrate.   7
   b) Define Type conversion. Write a program illustrating the type conversion from one class to another.   8

   OR

   a) Define Polymorphism. Write a program to add two strings by overloading the + operator.   7

   b) How does polymorphism play vital role in application development? Which type of polymorphism is needed to compute the distance between two states from specific location. [Use standard Unit like M and KM]   8

4. a) Explain the modes of inheritance. What is diamond problem in inheritance. Explain. Solve that problem by demonstrating example   7

b) Write a program to realize the following figure with necessary member functions to create and retrieve individual information. Every class should contain at least one constructor and should be inherited to other classes as well.   8
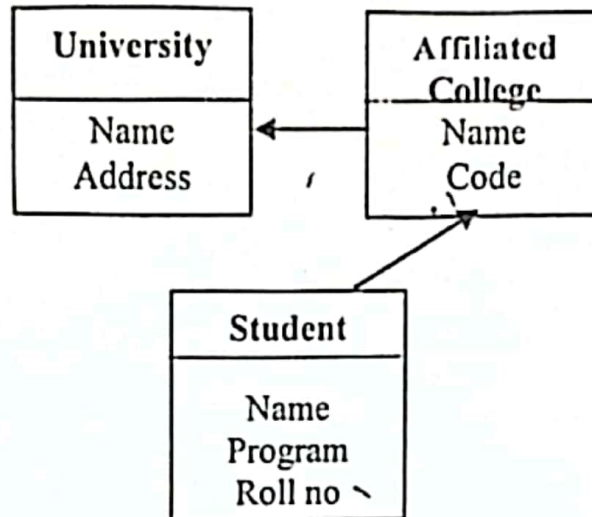
5. a) Define Generic with its advantages. Write a program to create template to swap two integer and two string values.   8   7

b) Define Exception handling. Does c++ supports multiple catch. Illustrate.

6. a) Why do we need file handling. By taking an example illustrate the modes of file handling.   8

b) What is this pointer why do we need it. write a program to illustrate the need of abstract class in c++.   7

7. Write short notes on following (Any Two)   5x2
   a) Standard Template Library
   b) Access specifier in c++
   c) Software Reusability

Good Luck!!!

COSMOS COLLEGE
OF MANAGEMENT AND TECHNOLOGY
Term Test 1

| Date: 2051-02-28		Full Marks	50
Level	BE	Time	
Programme	BEH, BCE	1.5 hrs	
Semester	II		

Subject: - Object Oriented Programming in C++

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt All questions.
✓ The figures in the margin indicate *Full Marks*
✓ Assume suitable data if necessary.

1. a) What makes OOP better than POP. Explain with features of OOP.   7
   b) How are object oriented Programs designed and developed according to   7
      the concept of RDD? Describe the entire process in brief.

2. a) Create a class Person with data member Name, age, address and   9
      citizenship number. Write a constructor to initialize the data of a person.
      Assign citizenship number if the age of the person is greater than 16.
      Otherwise assign value zero to citizenship number. Also create a function
      to display the values.   12

   b)
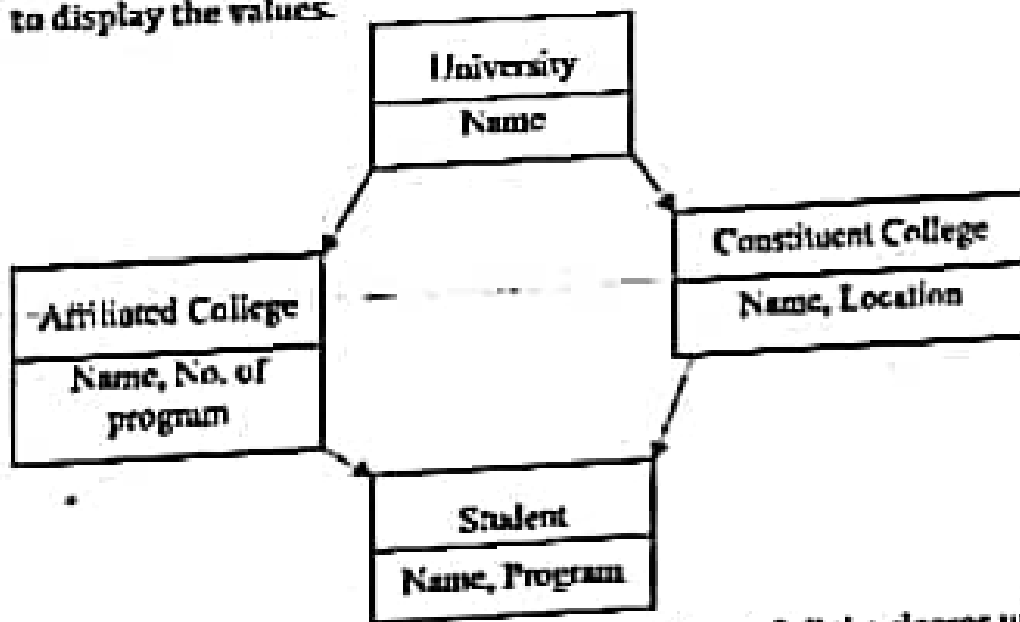
   Create the following network. Access all the data of all the classes using
   the object of class student.

3. a) What is inheritance? What are the different forms of inheritance. Explain   5
      with necessary diagram.
   b) Differentiate between member function, inline function, friend function   5
      and static member function in c++.

4. Write short note: (Any one)   5
      a. Access specifiers in C++
      b. Is-a and has-a rule

COSMOS COLLEGE
OF MANAGEMENT AND TECHNOLOGY

Term Test II

Date: 2081/03/07				
Level	BE		Full Marks	50
Programme	BEIT, BCE		Time	
Semester	II		1.5 hrs	

Subject: - Object Oriented Programming in C++

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

1. a) What is static binding and dynamic binding? Explain how you can achieve dynamic binding with example. **8**

   b) Define operator overloading. Overload – operator to find the difference between two complex numbers. **7**

2. a) Why type conversion is necessary in C++? Write a program that convert kilogram into gram using user define to user define data conversion. **8**

   b) "Templates helps in achieving generic programming" Support this statement. Create a function template that can swap two integers and two characters. **:8**

3. a) How do you handle exceptions in C++? Explain with suitable example. **7**

   b) What are the file hierarchy used in C++? Create a file named "hello.txt". Store a string in the file. Read the string from the file and display the stored string in the console. **7**

4. Write short note: (Any one) **5**
   - a. this pointer
   - b. Multiple Exception Handling