**Information Technology**

 **Vision:** To Visualize the creation of skilled, proficient IT professionals to meet current challenges.

**Mission:**

● To encourage young minds for training & entrepreneurship.

● To convey standard education with a rapidly changing environment with ethical values.

● To provide an environment where students can continuously learn, apply & communicate knowledge.

**Name Of Program :-** Diploma in Information Technology

**Course Title :-**  Object Oriented Programming using C++

**Course Code :-** 313316

**Chapter Name :-** Principles of Object Oriented Programming

**Date:-**

**Assignment No:-1**

Q.1 Explain Difference Between Procedure Oriented Programming (POP) & Object Oriented Programming (OOP).

Q.2 Explain the structure of C++ with a program and list down the differences between C & C++.

Q.3 Explain Principles( or features) of object oriented programming with their applications.

Q.4 What is the fundamental difference between a class and an object in object-oriented programming?

Q.5 Explain scope resolution and memory management operator.

Q.6 Explain different data types and dynamic initialization of variables .

Q7. Describe the role of access specifiers (public, private, protected) in a class.

Q8. Explain how memory is allocated when an object is created.

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**Name Of Program :-** Diploma in Information Technology

**Course Title :-**  Object Oriented Programming using C++

**Course Code :-** 313316

**Chapter Name :-** Functions and Constructors

**Date:-**

**Assignment No:-2**

Q.1 Explain the concept of an inline function. How does it differ from a regular function?

Q.2 Describe how to create and manipulate an array of objects in C++.

Q.3 Differentiate between default constructors, parameterized constructors, and copy constructors.

Q.4 Explain what constructor overloading is and Discuss the concept of constructors with default arguments.

Q.5 Create a class **Book** with the following attributes: **title, author, price**.

 Implement:

1. A parameterized constructor to initialize these attributes.
2. A function displayDetails() to display the details of the book.

 Q.6 Write a program in C++ that demonstrates the use of:

 1) A static member function to display the total count of rectangles.

 2) A friend function that calculates the perimeter of the rectangle using two different classes.

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**Name Of Program :-** Diploma in Information Technology

**Course Title :-**  Object Oriented Programming using C++

**Course Code :-** 313316

**Chapter Name :-** Extending classes using Inheritance

**Date:-**

**Assignment No:-3**

Q.1 Define each type of inheritance (Single, Multilevel, Multiple, Hierarchical, Hybrid) with examples in C++.

Q.2 Explain the concept of inheritance in object-oriented programming with an example.

Q.3 Write programs to implement virtual base class.

 Q.4 Write programs which show the use of constructors in derived class.

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**Name Of Program :-** Diploma in Information Technology

**Course Title :-**  Object Oriented Programming using C++

**Course Code :-** 313316

**Chapter Name :-** Pointers and Polymorphism in C++

**Date:-**

**Assignment No:-4**

Q.1 Explain the concept of pointers in C++. How do you declare a pointer, and what are the pointer and address operators?

Q.2 Discuss compile-time polymorphism in C++. How does function overloading differ from operator overloading?

Q.3 Provide an example of overloading a unary and a binary operator in a C++ class.

Q.4 Provide an example of pointer arithmetic by incrementing and decrementing a pointer to an array.

Q.5 Write programs for-Pointer to derived class in single inheritance and Pointer to derived class in multilevel inheritance.

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**Name Of Program :-** Diploma in Information Technology

**Course Title :-**  Object Oriented Programming using C++

**Course Code :-** 313316

**Chapter Name :-** File operations

**Date:-**

**Assignment No:-5**

Q.1 Describe the different C++ stream classes used for file operations.

Q.2 What are the various file modes available in C++, and how do they affect file handling? Provide examples to illustrate your explanation.

Q.3 Explain the process of opening and closing files in C++ using both constructors and the open() function.

Q.4 How do you read from and write to files, and what are the formatted input/output functions available for file operations?

Q.5 Differentiate between random access and sequential access in the context of file handling.

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