Code No: R2021051 **R20** SET - 1

II B. Tech I Semester Regular/Supplementary Examinations, December-2023
OBJECT ORIENTED PROGRAMMING THROUGH C++
(Com to CSE, IT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
~~~~~~~~~~~~~~~~~~~~~~~~~

UNIT-I

1 Explain in detail the features of Object Oriented Programming paradigm with suitable examples. [14M]

OR

2 a) Write any four significant differences between C and C++. [7M]
b) What are Objects and Classes in Object Oriented Programming? Explain. [7M]

UNIT-II

3 a) What is a Destructor? Why it is needed? When is a Destructor invoked? [7M]
b) Describe the use of Friend functions with an appropriate C++ program. [7M]

OR

4 a) What is a Constructor? Explain various forms of Constructors with suitable example. [7M]
b) Write a C++ program to demonstrate the significance of Nested classes. [7M]

UNIT-III

5 Develop a C++ program to overload the Binary operator '+' to concatenate two strings. [14M]

OR

6 a) Why do we need an Abstract Class in C++? Explain the features of Abstract Classes with a C++ program. [7M]
b) Explain the implementation of Multiple and Multilevel Inheritance in C++. [7M]

UNIT-IV

7 a) With a C++ program, explain how a Base Class pointer pointing to Derived Class object. [10M]
b) Specify the rules for defining Virtual functions in C++. [4M]

OR

8 How are Static and Dynamic Binding implemented in C++? Explain with a program and discuss their advantages and disadvantages. [14M]

UNIT-V

9 a) Explain various keywords related to C++ Exception handling with a program. [7M]
b) Differentiate between Templates and Macros in C++. [7M]

OR

10 a) Develop a C++ program to implement Bubble sort using Function Templates. [7M]
b) Explain in detail about Iterators in C++. [7M]

|'''|'|'|''||'''||||
~~~~~~~~~~~~~~~~~~~~~~~~~

Code No: R2021051 **R20** SET - 2

II B. Tech I Semester Regular/Supplementary Examinations, December-2023
OBJECT ORIENTED PROGRAMMING THROUGH C++
(Com to CSE, IT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
~~~~~~~~~~~~~~~~~~~~~~~~~

UNIT-I

1	a)	Compare and Contrast C and C++ programming languages.	[7M]
	b)	Explain about Data Abstraction with any three examples.	[7M]

OR

2	a)	How does OOP overcome the shortcomings of traditional programming approaches?	[7M]
	b)	Explain about Polymorphism and its significance with an example.	[7M]

UNIT-II

3	a)	Explain the different Access Control Specifiers available in C++ and their roles in inheritance.	[7M]
	b)	What is the real use of Method overloading? Explain with a sample C++ program.	[7M]

OR

4	a)	How to Declare and Define a friend function in C++? Explain with a sample code.	[7M]
	b)	Explain the features of Friend functions and Friend Classes in C++.	[7M]

UNIT-III

5	a)	Discuss the different types of Inheritance supported by C++ and explain how it encourages Code Reusability.	[10M]
	b)	How t use an object as a class member? Illustrate.	[4M]

OR

6	a)	Develop a C++ program to create an object of a class inside another class declaration.	[7M]
	b)	In C++, can pure abstract classes have data members and can an object be created from them? Give justification to your answer with proper explanation.	[7M]

UNIT-IV

7	a)	How are Pointer variables different from normal variables? Explain the steps to access an object in C++ using Pointers.	[7M]
	b)	What is meant by function binding in programming? Explain about Early and Late binding in C++.	[7M]

OR

|'''|'|'|''||'''||||
~~~~~~~~~~~~~~~~~~~~~~~~~

8 a) Explain the rules for defining Virtual functions in C++. [7M]

b) Explain the following [7M]
i)this pointer ii)Virtual destructor

UNIT-V

9 a) Explain the usage of Class and Function templates in C++ with a program. [7M]

b) How many Associative containers are provided by C++? Explain. [7M]

OR

10 a) How to define User-defined Exceptions in C++? Explain with a sample code snippet. [7M]

b) Give an overview of STL programming model in C++. [7M]

Code No: R2021051 **R20** SET - 3

II B. Tech I Semester Regular/Supplementary Examinations, December-2023
OBJECT ORIENTED PROGRAMMING THROUGH C++
(Com to CSE, IT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
~~~~~~~~~~~~~~~~~~~~~~~~~

UNIT-I

1 a) What is Object Oriented Programming? Explain in detail the basic features of Object Oriented Programming. [10M]
b) Discuss the types of Programming Paradigms. [4M]

OR

2 a) Briefly discuss the limitations of Conventional programming paradigms. [7M]
b) Write any two benefits of Code reusability and explain how it can be implemented in C++. [7M]

UNIT-II

3 a) What are the special characteristics of Constructors? Explain with a C++ program. [7M]
b) Describe the properties of Anonymous Objects and explain how to call member functions with an Anonymous Object. [7M]

OR

4 a) Which OOP principle implements function overloading? Explain with a C++ program. [7M]
b) Explain the usage of Scope Resolution operator with a C++ program. [7M]

UNIT-III

5 a) Explain various types of Inheritance supported by C++ with a program. [10M]
b) What are Abstract classes? Give their significance. Can they be inherited? Justify. [4M]

OR

6 a) Explain the syntax and rules for overloading Operators in C++. [7M]
b) What is the need for Virtual Base Class in C++? How to declare Virtual Base Class in C++? Explain. [7M]

UNIT-IV

7 a) What is a Class pointer? What is the size of an object pointer? Give explanation. [7M]
b) Explain the purpose of Virtual destructors in C++ with a sample program. [7M]

OR

|'''|'|'|''||'''||||
~~~~~~~~~~~~~~~~~~~~~~~~~

8 What are the benefits of Polymorphism in C++? Explain the different forms of Polymorphism and their implementation details with a C++ program. [14M]

UNIT-V

9 a) What are the advantages and disadvantages of Templates in C++? Give the syntax to write Class and Function Templates in C++ [7M]

b) Discuss various types of Containers in STL. [7M]

OR

10 a) Explain the concept of rethrowing exceptions in C++ with an example program [7M]

b) With a C++ program, explain the usage of various operators used in C++ Macros. [7M]

Code No: R2021051 **R20** SET - 4

II B. Tech I Semester Regular/Supplementary Examinations, December-2023
OBJECT ORIENTED PROGRAMMING THROUGH C++
(Com to CSE, IT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
~~~~~~~~~~~~~~~~~~~~~~~~~

UNIT-I

1	a)	Discuss the limitations of Conventional programming.	[7M]
	b)	Briefly explain the four pillars of Object Oriented Programming paradigm.	[7M]

OR

2	a)	How is Data Abstraction implemented in C++? Explain with an example.	[7M]
	b)	Explain about Objects, Classes and Methods in OOP.	[7M]

UNIT-II

3	a)	What is the main purpose of Constructors? How to invoke a constructor in C++? Explain.	[7M]
	b)	How to define Member Functions of Nested Class outside the enclosing Class? Explain with a C++ program	[7M]

OR

4	a)	When should we use Friend functions in C++? Explain with a program.	[7M]
	b)	Discuss the characteristics of Destructor in C++ programming? Is it possible to invoke a Destructor in C++ explicitly? Give explanation.	[7M]

UNIT-III

5		Write a C++ program to illustrate the importance of overloading Binary operator '+' for adding two complex numbers.	[14M]

OR

6	a)	Explain various forms of inheritance supported by C++.	[7M]
	b)	Write short notes on i)Abstract Classes ii)Virtual Base Classes	[7M]

UNIT-IV

7	a)	How Runtime Polymorphism is implemented in C++?	[7M]
	b)	Write a C++ program to illustrate the importance of 'this' pointer.	[7M]

OR

8	a)	Explain the syntax to declare, initialize and access pointers in C++.	[7M]
	b)	What is Polymorphism and how it is achieved in C++?	[7M]

|'''|'|'|''||'''||||
~~~~~~~~~~~~~~~~~~~~~~~~~

UNIT-V

9 a) Explain the hierarchy of execution of multiple catch blocks in C++ with a program. [7M]

b) What is Function template? Can a class member function template be virtual? Explain. [7M]

OR

10 Develop a C++ program to implement Singly Linked List using Templates. [14M]