

Even Semester Exam-2022
Department of Computer Science and Engineering
Jamia Hamdard ,New Delhi-110062
Paper Code: BTCSE –MOOCS 1
Subject: Programming in Modern C++

Time: 3Hours

MM: 75

Answer ALL questions from section-A and FOUR questions from section-B

Section-A (5x7=35 Marks)

S.No.	Question	Marks	CO	BL
1.	Describe the key features and advantages of using object-oriented programming (OOP) in C++. Provide examples to illustrate your points.	5	CO1	L1, L3
2.	Explain the concept of inheritance in C++ and discuss its role in code reuse and extensibility.	5	CO5	L1, L2
3.	Discuss the concept of polymorphism in C++ and how it enables the implementation of dynamic behavior.	5	CO4	L3
4.	Discuss the role of exceptions in C++ and how they can be used to handle errors and exceptional conditions in code?	5	CO3	L4
5.	Explain the concept of templates in C++ and their role in creating generic code. Discuss the advantages and limitations of using templates in your programs?	5	CO5	L5
6.	Discuss the importance of streams and the Standard Template Library (STL) in C++ programming?	5	CO2	L4
7.	Can modern C++ compete with other OOP languages, explain.	5	CO4	L2, L5

Section-B (10x4=40 Marks)

S.No	Question	Marks	CO	BL
1	Compare and contrast the procedural programming approach in C with the object-oriented programming approach in C++. Discuss the advantages of using C++ over C in terms of code organization, reusability, and maintainability.	10	CO1	L6
2	Discuss the role of concurrency in modern C++ programming. Explain the challenges associated with concurrent programming and describe the mechanisms provided by C++ to handle concurrency issues.	10	CO2	L2
3	Discuss the different containers available in the STL and their respective characteristics. Compare and contrast the usage scenarios of vector, list, and map containers in C++ programs.	10	CO3	L4
4	Explain the concept of modern C++ and its key features. Discuss the improvements and new features introduced in recent versions of C++ and how they enhance the programming experience.	10	CO4	L2
5	Write a C++ program that demonstrates the concept of polymorphism using inheritance. Create a base class "Shape" with a pure virtual function "calculateArea()" and two derived classes "Circle" and "Rectangle" that inherit from the base class. Implement the "calculateArea()" function in each derived class to calculate and return the area of the respective shape. Create objects of both derived classes and demonstrate polymorphism by calling the "calculateArea()" function on each object. Display the calculated areas on the console.	10	CO5	L2, L3
6	Write short notes on i) bottom up approach ii) data hiding	10	CO2	L4

----- Best wishes -----