

Total No. of Questions : 8]

SEAT No. :

**P1528**

**[6002]-157**

[Total No. of Pages : 2

**S.E. (Computer Engineering) (Artificial Intelligence & Data Science)**  
**(Computer Science & Design Engineering)**  
**OBJECT ORIENTED PROGRAMMING (OOP)**  
**(2019 Pattern) (Semester - III) (Theory) (210243)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Endsem exam based on 3, 4, 5, 6.*
- 2) *Draw Neat and clean Diagram.*
- 3) *Assume suitable data if necessary.*

- Q1)** a) What is runtime polymorphism? How it is achieved in C++. Explain it along with example. [5]  
b) Explain virtual base class and virtual function with example. [6]  
c) Explain need of operator overloading. Write C++ program to demonstrate use of unary operator overloading. [6]

OR

- Q2)** a) Explain polymorphism and types of polymorphism in C++. [5]  
b) Explain what is type casting, Explain Implicit and explicit type of conversion with example. [6]  
c) Write a program to overload insertion (<<) and extraction (>>) operator in C++. [6]

- Q3)** a) What are various functions which are used to manipulate file pointers? Explain using example. [7]  
b) Explain command line arguments in C++? Write program to explain the same. [7]  
c) What are different file opening mode? [4]

OR

- Q4)** a) Explain formatted and unformatted input and output functions used in C++ with example. [7]  
b) What are stream classes and their use? Provide the hierarchy of stream classes in C++. [7]  
c) Explain the use of command line arguments. If we want to pass command line arguments what will be prototype of main function and explain its arguments along with example. [4]

**P.T.O.**

- Q5) a) ✓ What is the power of templates in C++? Explain along with one example. [5]  
b) ✓ Explain exception handling mechanism in C++? Write a program in C++ to handle "divide by zero" exception. [6]  
c) ✓ Write a short note on typename and export keyword in C++. [6]

OR

- Q6) a) ✓ What is mean by user defined exception? Give one example. [5]  
b) ✓ Explain class template using multiple parameters. Write a program in C++. [6]  
c) ✓ How multiple catching is implemented in exception handling? [6]

- Q7) a) ✓ Explain the concept of the Standard Template Library (STL) in C++. What are its key components? [7]  
b) ✓ Differentiate between sequence containers and associative containers in the STL. Provide examples of each. [7]  
c) ✓ Discuss the advantages of using container adapters in the STL. Provide examples of container adapters [4]

OR

- Q8) a) ✓ How can vectors and lists be used as sequence containers in the STL? Explain with a appropriate example. [7]  
b) ✓ Explain the concept of iterators in the STL. Differentiate between iterator and pointers. [7]  
c) ✓ Describe the process of using the STL algorithms for Quick sort. [4]

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