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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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