602105

January 2023
MCA Ist Semester
Object Oriented Programming Using C++ (MCA-20-107)

Time : 3 Hours]   [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) What is the difference between inline function and macro?   (1.5)

    (b) Can the task of function overloading be achieved using default arguments? Justify.   (1.5)

    (c) What are the advantages of call by address method of function calling over call by reference?   (1.5)

    (d) Write *two* uses of the resolution '::' operator.   (1.5)

    (e) What is the difference between containership and inheritance?   (1.5)

    (f) Why is the constructor function always declared in the public section of the class?   (1.5)

(g) What is the significance of pure virtual function? (1.5)

(h) Can an operator function be a friend of the class? Discuss. (1.5)

(i) Write the uses of the abort () and exit () functions. (1.5)

(j) Write a short note on the state diagram. (1.5)

PART–B

2. (a) What is generic programming? Write the program to sort a list of arbitrary data types using a function template. (10)

(b) What is typecasting? Discuss the implicit and explicit types of it. (5)

3. (a) What is the difference between exception and error? Write a program to push an element on to stack using exception handling. If the stack is full then throw an appropriate exception. (10)

(b) What ambiguities can be arisen in multiple inheritance? How they can be resolved? (5)

4. (a) What are static data members? How memory is shared among these members? (10)

(b) Write the steps taken by the compiler while handling function overloading. (5)

5. What are the different types of polymorphism? Write the program to overload incremental operator (++) over a time object. Considering a time object consist of minute and second as data members. (15)

6. (a) A friend function can act as a bridge between two classes. Justify with the help of a program. (10)

(b) How new and delete operators are used for memory management in C++ ? (5)

7. Write the difference between the following :

(a) Class and object.

(b) Function overloading and function overriding.

(c) Abstraction and Encapsulation. (15)

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