

Total No. of printed pages = 3

**CSE 181302**

Roll No. of candidate

1372/23

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2023

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**B.Tech. 3<sup>rd</sup> Semester End-Term Examination**

**Computer Science and Engineering**

**OBJECT ORIENTED PROGRAMMING USING C++**

**(New Regulation and New Syllabus)**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *four* from the rest.

1. Choose the most appropriate choice to answer the following : (10 × 1 = 10)

(i) C++ can be used as an procedural language as well as an object oriented language

(a) True

(b) False

(ii) A function that changes the state of the cout object is called *a(n)* \_\_\_\_\_.

(a) Member

(b) Adjuster

(c) Manipulator

(d) Operator

(iii) The feature by which one object can interact with another object is \_\_\_\_\_.

(a) Message passing

(b) Data binding

(c) Data transfer

(d) Inheritance

(iv) In which access should a constructor be defined, so that object of the class can be created in any function?

(a) Any access specifier will work

(b) Private

(c) Public

(d) Protected

[Turn over

- (v) Which keywords among the following can be used to declare an array of objects in C++?
- (a) Allocate (b) New  
(c) Arr (d) Create
- (vi) What happens if non static members are used in static member function?
- (a) Executes fine  
(b) Executes if that member function is not used  
(c) Compile time error  
(d) Runtime error
- (vii) What does C++ append to the end of a string literal constant?
- (a) A space (b) A number sign(#)  
(c) An asterisk(\*) (d) A null character
- (viii) To write a comment in a C++ program, you begin the comment with \_\_\_\_\_.
- (a) \*\* (b) //  
(c) \\ (d) \$\$
- (ix) Instance of which type of class can't be created?
- (a) Nested class (b) Parent class  
(c) Abstract class (d) Anonymous class
- (x) The generic type in a template function.
- (a) Must be T  
(b) Can be T  
(c) Cannot be T for functions we create, but may be for C++'s built-in functions  
(d) Cannot be T
2. (a) What do you mean by access specifier? What are the different types of access specifiers available in C++? Explain briefly about each of them. (2 + 3 + 6 = 11)
- (b) Write a simple program to show how memory is allocated and deallocated dynamically in C++. (4)

3. (a) What do you mean by polymorphism? What are the different types of polymorphisms? Explain how run time polymorphism can be implemented in C++ with a suitable example. (2 + 2 + 6 = 10)
- (b) State the differences between function overloading and function overriding. (5)
4. (a) What do you mean by inheritance? Discuss about the different types of inheritances. (2 + 6 = 8)
- (b) Write a program in C++ to demonstrate multiple inheritance. (7)
5. (a) What are static data members of a class? Write a program in C++ to show the use of static data members of a class. (2 + 4 = 6)
- (b) Explain why and how virtual functions are used in C with a suitable example. (3 + 6 = 9)
6. (a) Explain about friend function and friend classes in with suitable examples in C++. (8)
- (b) What is an exception? Explain briefly about the exception handling mechanism in C++. (2 + 5 = 7)
7. Write short notes on (any three) : (3 × 5 = 15)
- (a) Generic programming
- (b) Stream classes in C++
- (c) Inline function
- (d) Binary operator overloading
- (e) Constructors in C++
- (f) Abstract class.

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