29. a.i. Write a C++ program to demonstrate unary increment (++) and unary decrement (− −) operator overloading. (8 Marks)

ii. Write a C++ program to demonstrate unary minus (−) operator overloading. (4 Marks)

(OR)

b. Illustrate various messages in UML sequence diagram with example.

30. a. Write a C++ program to demonstrate hierarchical inheritance to get square and cube of a number.

(OR)

b. Explain about UML activity diagram with various notations.

31. a.i. Write a C++ program to demonstrate division by zero exception.

ii. Illustrate user defined exception with suitable example.

(OR)

b.i. Draw deployment diagram in UML for order management system.

ii. Write a C++ program to implement bubble sort using templates in C++.

32. a.i. Demonstrate the associative container in C++. (8 Marks)

ii. Write short notes on streams in C++. (4 Marks)

(OR)

b.i. Write a C++ program to implement stack in STL. (8 Marks)

ii. Brief about iterators in C++. (4 Marks)

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B.Tech. DEGREE EXAMINATION, NOVEMBER 2019
Third Semester

18CSC202J – OBJECT ORIENTED DESIGN AND PROGRAMMING
(For the candidates admitted during the academic year 2018-2019 onwards)

Note:
(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.
(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours   Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer **ALL** Questions

1. Only the _____ can have access to the private members and private functions.
   (A) Data functions   (B) Inline functions
   (C) Member functions   (D) Member variables

2. Constructors are normally used to _____ and to allocate memory.
   (A) Define variables   (B) Allocate variables
   (C) Initialize variables   (D) Initialize object

3. Destructor is a member function whose name is same as the class name but is preceded by a
   _____.
   (A) Tilde   (B) Hash
   (C) Dot   (D) Scope resolution

4. A UML diagram that facilitates requirements gathering and interacts between system and external users, is called as
   (A) Flow chart diagram   (B) Sequence diagram
   (C) Data flow diagram   (D) Use case diagram

5. State whether the following statements are true (or) false for overloading operators.
   (i)   Only existing operators can be overloaded
   (ii) We can change the basic meaning of a operator
   (A) True, true   (B) True, false
   (C) False, true   (D) False, false

6. _____ overloaded by means of a member function, take no explicit arguments and return no explicit values.
   (A) Unary operators   (B) Binary operators
   (C) Arithmetic operators   (D) Function operators

7. Which of the following cannot be overloaded in C++?
   (A) Increment operator   (B) Constructor
   (C) Destructor   (D) New and delete operator

8. Activity diagram, use case diagram, collaboration diagram and sequence diagram are considered as types of
   (A) Non-behavioural diagrams
   (B) Non structural diagrams
   (C) Structural diagrams
   (D) Behavioural diagrams

9. How many basic types of inheritance are provided as OOP feature?
   (A) 4
   (B) 3
   (C) 2
   (D) 1

10. Which type of inheritance leads to diamond problem?
    (A) Single level
    (B) Multi-level
    (C) Multiple
    (D) Hierarchical

11. If a _____ is defined in the base class, it need not be necessarily redefined in the derived class.
    (A) Member function
    (B) Virtual function
    (C) Static function
    (D) Real function

12. Inheritance relationships are represented in the UML notation by
    (A) Lines with solid diamond at one end
    (B) Lines with hollow diamond at one end
    (C) Lines with hollow triangular arrow at one end
    (D) Lines with solid triangular arrow at both ends

13. _____ are used for generic programming.
    (A) Inheritance
    (B) Virtual functions
    (C) Templates
    (D) Operator overloading

14. An exception thrown from outside try block will
    (A) Call function return
    (B) Be ignored
    (C) Hang the machine
    (D) Call function terminate

15. The user-defined exception defines _____.
    (A) Inheriting and overriding exception class functionality
    (B) Overriding class functionality
    (C) Inheriting class functionality
    (D) Function overloading

16. Class diagram, component diagram, object diagram and deployment diagram are considered as types of
    (A) Structural diagrams
    (B) Behavioural diagrams
    (C) Non-behavioural diagrams
    (D) Non structural diagrams

17. A common activity performed on a container is called
    (A) Functioning
    (B) Iterator
    (C) Traversal
    (D) Deletion of objects

18. What does STL stand for?
    (A) Simple template library
    (B) Standard template library
    (C) Static type library
    (D) Single type-based library

19. Which stream class is used to both read and write on files?
    (A) ofstream
    (B) ifstream
    (C) fstream
    (D) iostream

20. Which among following is correct syntax of closing a file in C++?
    (A) myfile$close ( );
    (B) myfile@close ( );
    (C) Myfile:close ( );
    (D) Myfile.close ( );

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Illustrate the working of constructor and destructor in C++ with suitable example.

22. Draw UML use case diagram for bank ATM.

23. Demonstrate function overloading in C++ with example.

24. Illustrate friend function in C++ with suitable example?

25. How templates work in C++?

26. What are all the components of state chart diagram in UML?

27. Write a C++ program to open a file for reading.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a.i. Write a C++ program for the following specifications
    Class: SRMIST_Library private members of the class SRMIST_Library are
    Book_No - integer type
    Book_Title - 20 characters
    Price - float (price per copy)
    TOT_COST ( ) - to calculate the total cost for N number of copies where N is passed to the function as argument
    Public members of the class SRMIST_Library are
    Input ( ) - to read Book No, Book_Title and price
    Purchase ( ) - function to ask the user to input the number of copies to be purchased
    It invokes TOT_COST ( ) and prints the total cost to be paid by the user.   (8 Marks)

    ii. Differentiate access specifiers public, private and protected with example.   (4 Marks)

    (OR)

    b.i. Draw a class diagram for below scenario, and be sure to label all associations with appropriate multiplicities.
    A SRM cricket league is made up of at least eight cricket teams. Each cricket team is composed of eleven to fifteen players and one player captains the team. A team has a name and reward. Players have a number and position. Cricket teams play games against each other. Each game has a score and location. Teams are sometimes lead by a warch. A warch has a level of accreditation and a number of years of experience and can warch multiple teams. Coaches and players are people and people have names and addresses.   (8 Marks)

    ii. Demonstrate the following <<include>> and <<extend>> in use case diagram with examples.   (4 Marks)