

- b. Write a CPP program to demonstrate the working of STL stack with the STL functions.

Reg. No.

PART – C (1 × 15 = 15 Marks)

Answer **ANY ONE** Question

Marks BL CO PO

26. Create a class named 'Triangle' with two private data members, base and height and one function to calculate the area of triangle. The class should have the following constructors:
- Having no parameter – values of both base and height are assigned zero
 - Having two parameters – to assign values to base and height
 - Having one parameter – assign value through parameter for base and assign height = 4
 - Having a copy constructor to copy values of one object to another
- Create objects for the classes and calculate the area of triangle and print the area.
27. Write a CPP program for the below mentioned hybrid inheritance scenario:
- Create a class 'student' to get the student details. Inherit a class named 'Marks' from 'Student' class to calculate the marks of students. Next, create a class 'sports' to get the sports marks. Finally, create a class 'Result' inherited from 'Marks' and 'sports' to calculate the overall result and average (overall results will be from marks and sports marks).

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B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, MAY 2023

Second & Third Semester

21CSC101T – OBJECT ORIENTED DESIGN AND PROGRAMMING

(For the candidates admitted from the academic year 2022-2023 onwards)

Note:

- Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 75

PART – A (20 × 1 = 20Marks)

Answer **ALL** Questions

- | | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. Which feature of OOP indicates code reusability? | 1 | 1 | 1 | 1 |
| (A) Abstraction (B) Encapsulation
(C) Inheritance (D) Polymorphism | | | | |
| 2. Which of the following statement is true for the command:
int f (float) | 1 | 2 | 1 | 2 |
| (A) f is a function taking an argument of type int and returning a floating-point number
(B) f is a function taking an argument of type float and returning an integer
(C) f is a function of type float (D) f is a function of type int | | | | |
| 3. Identify the correct way to declare a constant data type using preprocessor directive in C++? | 1 | 2 | 1 | 2 |
| (A) #define int a = 100 (B) #define a = 100
(C) #define int a 100 (D) #define a 100 | | | | |
| 4. Which of the following access specifier allows the user to inherit the private members of a class? | 1 | 1 | 1 | 2 |
| (A) Public (B) Protected
(C) Default (D) Private | | | | |
| 5. What happens if a user forgets to define a constructor inside a class? | 1 | 2 | 2 | 2 |
| (A) Error occurs (B) Segmentation fault
(C) Objects are not created properly (D) Compiler provides a default constructor to avoid faults / errors | | | | |
| 6. Which of the following permits function overloading on C++? | 1 | 1 | 2 | 1 |
| (A) Type of arguments (B) Number of arguments
(C) Type and number of arguments (D) Number of objects | | | | |
| 7. Which of the following C++ operator(s) can be overloaded? | 1 | 1 | 2 | 1 |
| (A) Size operator (size of) (B) Conditional operator (?:)
(C) Arithmetic operator (+,-,*,/) (D) Class Member Access Operator (.) | | | | |

8. Sequence and collaboration diagrams are _____.
 (A) UML interaction diagrams (B) UML static diagrams
 (C) UML structural diagrams (D) UML implementation diagrams
9. Identify what happens when an attempt is made to instantiate an object of an abstract class.
 (A) Success message (B) Warning message
 (C) Compilation error (D) Objects gets created
10. In multilevel inheritance one class inherits _____.
 (A) Only from one class (B) More than one class
 (C) Atleast one class (D) As many classes as required
11. The double line filled circle with pointing arrow is _____.
 (A) Start state (B) Final state
 (C) Transition state (D) Composite state
12. An inline function is expanded during _____.
 (A) Compile time (B) Run time
 (C) Never expanded (D) End of program
13. What are templates in C++?
 (A) A feature that allows programmer to write generic programs
 (B) A feature that allows programmer to write specific codes for a problem
 (C) A feature that allows programmer to make program modular
 (D) A feature that does not add any power to the language
14. What is an exception in C++ program?
 (A) A problem that arises during the execution of a program
 (B) A problem that arises during compilation
 (C) Syntax error (D) Semantic error
15. _____ is used to visualize the topology of the physical components of a system.
 (A) Class diagram (B) Sequence diagram
 (C) Deployment diagram (D) Package diagram
16. The _____ block identifies a block of code for which a particular exception will be activated.
 (A) try (B) throw
 (C) catch (D) finally
17. How many components Standard Template Library (STL) has?
 (A) 1 (B) 2
 (C) 3 (D) 4
18. What are iterators?
 (A) Iterators are used to iterate over functions
 (B) Iterators are containers
 (C) Iterators are used to iterate over pointer
 (D) Iterators are like pointers that points to an element inside the container

19. Which function is used to access the first element of an array class?
 (A) front () (B) start ()
 (C) first () (D) back ()
20. _____ is a procedure that is used to process the data contained in containers.
 (A) Algorithm (B) Iterator
 (C) Pointer (D) Object

PART – B (5 × 8 = 40 Marks)

Answer **ALL** Questions

21. a. Write a CPP program to calculate and display the area of a rectangle. Create a class with two private data members length and breadth and three functions. First function to get the values of length and breadth, second function to calculate the area and third function to display the area. Length and breadth should be entered by the user.
- (OR)**
- b. Draw the UML use case diagram for the library management system. The system will have two users Librarian and student with the following functions.
 Librarian functions: Add books, Add student, Add publication, Issue book, Return book, Apply penalty, View report
 Student functions: Search book, Issue book, Return book, Penalty report, Change password.
22. a. Write a CPP program to add and subtract two complex numbers using operator overloading concept.
- (OR)**
- b. Create the sequence and collaboration diagram for withdrawal scenario in the bank ATM system. The system starts the process by employing a standard procedure for validating the card and account holder.
23. a. Write a CPP program to differentiate early binding and late binding with the help of virtual functions.
- (OR)**
- b. Draw the activity diagram with swim lanes for railway reservation system. The passenger should be able to book ticket in online railway reservation system. The diagram should include fork, joint, decision etc.
24. a. Write a CPP program to find the largest of two numbers using function templates.
- (OR)**
- b. Develop the components and deployment diagram for online banking system.
25. a. Explain in detail about the components that make up the Standard Template Libraries (STL).