B.Tech DEGREE EXAMINATION, MAY 2024

Third & Fourth Semester

18CSC202J - OBJECT ORIENTED DESIGN AND PROGRAMMING

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:

i. **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.

ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours   **Max. Marks: 100**

PART - A (20 × 1 = 20 Marks)
Answer all Questions

		Marks	BL	CO

1. Which operator has the highest precedence? — Marks 1, BL 1, CO 1
   (A) ()
   (B) =
   (C) *
   (D) ++

2. Find how many bytes are occupied by the following data type in a 32-bit system. — Marks 1, BL 1, CO 1
   (A) Type int
   (B) Type long double
   (C) Type float
   (D) Type lon

3. What is the purpose of a use case diagram? — Marks 1, BL 2, CO 1
   (A) To show the behavior of objects in a system
   (B) To show the interactions between actors and a system
   (C) To show the flow of activities in a system
   (D) To show the structure of classes in a system

4. What is the output of this program? — Marks 1, BL 3, CO 1

```
class Empty { };

class Derived: Empty { int a; };

int main()
{
  cout << sizeof(Derived);
  return 0;
}
```
   (A) 1
   (B) 2
   (C) 4
   (D) Error

5. While overloading binary operators using member function, it requires ___ argument? — Marks 1, BL 1, CO 2
   (A) 2
   (B) 1
   (C) 0
   (D) 3

6. Which of the following gets called when an object is being created? — Marks 1, BL 1, CO 2
   (A) Constructor
   (B) Virtual Function
   (C) Destructors
   (D) Main

7. Can we pass parameters to base class constructor through derived class or derived class constructor? — Marks 1, BL 1, CO 2
   (A) Yes
   (B) NO
   (C) May Be
   (D) Can't Say

8. Which of the following cannot be overloaded in C++? — Marks 1, BL 1, CO 2
   (A) Increment operator
   (B) Constructor
   (C) Destructor
   (D) New and delete operator

9. How many types of inheritance are there in C++?   1   2   3
   (A) 2   (B) 3
   (C) 4   (D) 5

10. In Multipath inheritance, in order to remove duplicate set of records in child class,   1   1   3
    we _____ .
    (A) Write Virtual function in parent   (B) Write virtual functions is base class
        classes
    (C) Make base class as virtual base   (D) Write Virtual function in virtual
        class   base class

11. Which of the following is true about interfaces in java.   1   1   3
    1) An interface can contain following type of members.
    ....public, static, final fields (i.e., constants)
    ....default and static methods with bodies

    2) An instance of interface can be created.

    3) A class can implement multiple interfaces.

    4) Many classes can implement the same interface.

    (A) 1, 3 and 4   (B) 1, 2 and 4
    (C) 2, 3 and 4   (D) 1, 2, 3 and 4

12. We cannot make an instance of an abstract base class   1   2   3
    (A) TRUE   (B) FALSE
    (C) Can be true and false   (D) Can not say

13. 13 _____ type of program can be included in try block?   1   1   4
    (A) static memory allocation   (B) dynamic memory allocation
    (C) const reference   (D) pointer

14. What will be the output of this program?   1   3   4
    #include <iostream>
    using namespace std;

    template <int i>
    void fun()
    {
     i = 20;
     cout << i;
    }

    int main()
    {
     fun<10>();
     return 0;
    }
    (A) Compile Error   (B) 10
    (C) 20   (D) 15

15. ___ specifies additional detail about UML element.   1   2   5
    (A) Stereotype   (B) container
    (C) associative container   (D) data processing

16. Activity, use case diagram, collaboration diagram and sequence diagram are   1   2   5
    categorized as _____ .
    (A) non-behavioral diagrams   (B) non structural diagrams
    (C) structural diagrams   (D) Behavioral diagram

17. What are the Associative Containers?   1   1   6
   (A) Containers that implements data structures which can be accessed sequentially
   (B) Containers that implements sorted data structures for fast search in O(logn)
   (C) Containers that implements unsorted(hashed) data structures for quick search in O(1)
   (D) Containers that implements data structures which can be accessed non-sequentially

18. Which header file is used for Iterators?   1   1   6
   (A) <iterator>
   (B) <algorithm>
   (C) <iter>
   (D) <loopIter>

19. Which function can be used to find the sum of a vector container?   1   1   6
   (A) findsum()
   (B) accumulate()
   (C) calcsum()
   (D) checksum()

20. What is the property of partial sort function provided by the STL algorithm?   1   1   6
   (A) sorts the elements before the middle element in ascending order and remaining elements are left without any specific order
   (B) sorts the elements before the middle element in descending order and remaining elements are left without any specific order
   (C) sorts the elements after the middle element in ascending order and remaining elements are left without any specific order
   (D) sorts the elements after the middle element in descending order and remaining elements are left without any specific order

PART - B (5 × 4 = 20 Marks)
Answer **any 5** Questions

	Marks	BL	CO
21. Consider a Banking System. Identify three entities in the system which can be represented using classes and show the relationship between them using UML class diagrams	4	3	1
22. Define method overloading. Write a program to implement method overloading with different number of arguments and same return types.	4	3	2
23. Explain about Abstract Class and Interface.	4	2	3
24. When should a function throw an exception? Give an example to illustrate it.	4	2	4
25. Define Deployment diagram. State the artifacts to be identified before drawing a Deployment diagram.	4	1	5
26. What are the 3 entities of STL in C++?	4	1	6
27. Write a C++ program to generate factorial of a number using class.	4	3	1

PART - C (5 × 12 = 60 Marks)
Answer **all** Questions

	Marks	BL	CO
28. (a) A University conducts examinations and the results are announced. Prepare a report for the following: • Print the marks in the register number order semester wise for each department • Print the Arrear list semester wise. • Prepare a Rank list for each department.	12	3	1

(OR)

(b) Write the problem statement for Library Management system. Design UML Class diagram and explain its components

29. (a) Define Sequence and Collaboration diagram. Draw the sequence and collaboration diagram for ATM amount withdrawal   12   4   2

(OR)

(b) Explain in detail about operator overloading and its types with example.

30. (a) Describe Multilevel Inheritance with example program?   12   2   3

(OR)

(b) Describe in detail about advanced friend function and friend class with example?

31. (a) Write a C++ program to demonstrate the use of try, catch , throw and nested try.   12   1   5

(OR)

(b) Design the Component, Deployment and package diagram for the Airline Reservation system. Explain the system with the notations used in each diagram.

32. (a) Explain the use of ifstream and ofstream classes for file input and output.   12   2   6

(OR)

(b) Explain the file operation functions in C++ to manipulate the position of file pointers in a random access file.

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