Register No.:   ....   Name: ....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

THIRD SEMESTER INTEGRATED MCA DEGREE EXAMINATION (S), FEBRUARY 2024
(2020 SCHEME)

Course Code: **20IMCAT205**

Course Name: **Introduction to Object Oriented Programming**

Max. Marks: **60**   **Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. What is encapsulation and how it is implemented in C++?
2. Write short notes on access specifiers in C++.
3. What are inline functions? Give an example.
4. What are static member functions? Mention its characteristics.
5. With suitable examples, differentiate function overloading from function overriding.
6. Write short note on abstract classes.
7. Write a C++ program to swap two numbers using pointer.
8. State the use of **new** operator. Give an example of its usage.
9. With suitable examples, write note on the formatted console I/O operations:
   - i) width()
   - ii) precision()
   - iii) fill()
10. Write short note on any three file opening modes in C++.

PART B
(Answer one full question from each module, each question carries 6 marks)

MODULE I

11. Explain the structure of a C++ program. Give an example. (6)

OR

12. Write a program to add two complex numbers using an object as function argument. (6)

MODULE II

13. What are constructors? With suitable examples, explain different types of constructors in C++. (6)

OR

14. a) What are **friend** functions? (2)

b) Write a C++ program to implement a friend function to convert and print meter value in a *Distance* class object into kilometer value.   (4)

MODULE III

15. Write a C++ program to overload < operator. Create two *box* class objects with data members, *length*, *width* and *height,* and hence find and print the volume of the larger *box* object.   (6)

OR

16. What is inheritance? Explain the following types of inheritance
    - i) Single inheritance
    - ii) Multiple inheritance
    - iii) Multi-level inheritance

   (6)

MODULE IV

17. With proper examples, write note on the following types of pointers
    - i) *void* pointer.
    - ii) *wild* pointer.
    - iii) *this* pointer.

   (6)

OR

18. Write a C++ program to demonstrate the use of the pure virtual function.   (6)

MODULE V

19. Explain the templates in C++. Give examples.   (6)

OR

20. Explain the exception handling mechanism in C++.   (6)

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