END SEMESTER EXAMINATION - MARCH 2024
SEMESTER 2 - INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE
COURSE : **21UP2CRMCP04 - OBJECT ORIENTED PROGRAMMING USING C++**
(For Regular - 2023 Admission and Improvement / Supplementary - 2022/2021 Admissions)

Time : Three Hours   Max.Weightage : 30

PART A
Answer any 8 Questions

1. State any two programming languages that supports structured programming.

2. Give an example of an exit-controlled loop.

3. Identify the error in the following code segment:
```
class Room{
    int width, height;
    void setValue (int w, int h){
        width = w; height = h; }
};
main(){
    Room obj;
    obj.width = 20;
}
```

4. Predict the output of the following code:
```
class Sample{
    int var;
    public: Sample(){  var = 10;  }
            friend void fun();
};
void fun(){
    Sample S;
    cout << S.var << endl;
}
main(){
    fun();
}
```

5. A destructor is represented by ---------------- symbol.

6. Define the term constructor in C++.

7. List any two operators that can be overloaded.

8. If A, B and C are three classes such that C inherits A and B, then write the syntax of inheriting it.

9. Identify errors in the following code fragment:
```
class F {
   int g;
   public : void readit () { cin >> g; }
};
class G : public F {
   public: void test () { g -- ; }
};
```

10. Runtime polymorphism can be implemented in C++ by using -----------------.

(1 x 8 = 8 Weight)

PART B
Answer any 6 Questions

11. Discuss the need of preprocessor directive `#include<iostream>`.

12. Using recursive functions, write a C++ program to find factorial of a number.

13. Define static member functions. Discuss its properties.

14. Define friend functions. List the properties of a friend function.

15. Discuss the features of constructors.

16. Predict the output of the following program:
```
class Counter{
    int count;
    public: Counter () { count = 0; }
            void inc_Count() { count++;}
            int get_count() {return count;}
};
void main() {
    Counter C1,C2;
    cout<<"\tC1="<<C1.get_count();
    cout<<"\tC2="<<C2.get_count();
    C1.inc_count();
    C2.inc_count();
    C2.inc_count();
    cout<<"\tC1="<<C1.get_count();
    cout<<"\tC2="<<C2.get_count();
}
```

17. Explain multiple inheritance. Discuss the issues of multiple inheritance.

18. State the rules for defining virtual functions.

(2 x 6 = 12 Weight)

PART C
Answer any 2 Questions

19. Explain the various programming paradigms.

20. Write a C++ program to show how friend functions can be used with classes.

21. Write a program that implements overloading of any binary operator.

22. Write a program to show how pointers are used with derived class objects.

(5 x 2 = 10 Weight)