Question 1 [5 Marks]

If a function is a friend of a class, which one of the following is wrong?

A. A function can only be declared a friend by a class itself.

B. Friend functions are not members of a class, they are associated with it.

✓ Friend functions are members of a class.

D. It can have access to all members of the class, even private ones.

Explanation
A friend of the class can be a member of some other class but Friend functions are not the members of a particular class.

Question 2 [5 Marks]

Which of the following is/are automatically added to every class, if we do not write our own.

A. Copy Constructor

B. Assignment Operator

C. A constructor without any parameter

✓ All of the above

Your submitted response was correct.

Question 3 [5 Marks]

Please choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Point
{
    Point() {
        cout << "Constructor called\n";
    }
};

int main()
```

A. Runtime Error

✗ Constructor Called

✓ Compilation Error

Question 4 [5 Marks]

Please choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Point
{
        public:
                Point() { cout << "Normal Constructor called\n"; }
            Point(const Point &t) { cout << "Copy constructor called\n"; }
};

int main()
```

A
Normal Constructor called
Normal Constructor called
Normal Constructor called
Copy Constructor called
Copy Constructor called
Normal Constructor called
Copy Constructor called

B
Normal Constructor called
Copy Constructor called
Copy Constructor called
Normal Constructor called
Copy Constructor called

✓
Normal Constructor called
Copy Constructor called
Copy Constructor called
Normal Constructor called

Question 5 [5 Marks]

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
        public:
                Test() { cout << "Constructor called"; }
};

int main()
{
    Test *t = (Test *) malloc(sizeof(Test));
```

A
Constructor called

✓
Empty

C
Compilation Error

D
Runtime Error

Question 6 [5 Marks]

Which of the following is true about constructors?

1. They cannot be virtual.
2. They cannot be private.
3. They are automatically called by *new* operator.

A. All of the statements

✓ 1 and 3

C. 1 and 2

D. 2 and 3

Question 7 [5 Marks]

Which of the following functions must use reference.

A. Assignment operator function

✓ Copy constructor

C. Destructor

D. Parameterized Constructor

Question 8 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

int &fun()
{
    static int x = 10;
    return x;
}

int main()
{
```

A. 10

B. Compilation Error

✓ 30

D. A value equal to address of x

Question 9 [5 Marks]

Choose the correct output amongst the ones given below:

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
    static int x;
    int *ptr;
    int y;
};

int main()
```

A. 12 4

B. 12 12

✓ 8 4

D. 8 8

Question 10 [5 Marks]

Which of the following is **NOT** correct for virtual function in C++?

A. Must be declared in the public section of the class.

✓ Virtual functions can be static.

C. Virtual functions should be accessed using pointers.

D. Virtual functions are defined in the base class.

Question 11 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

int i;

class A
{
        public:
            ~A() {
                i=10;
            }
```

A. 0

✓ 3

C. 10

D. None of the Above

Question 12 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class A
{
    int id;
    static int count;
        public:
            A() {
                count++;
                id = count;
```

✓ constructor for id 1
constructor for id 2
constructor for id 3
destructor for id 3
destructor for id 2
destructor for id 1

B
constructor for id 1
constructor for id 2
constructor for id 3
destructor for id 1

Question 13 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
    int x;
        public:
                void* operator new(size_t size);
                void operator delete(void*);
        Test(int i) {
                x = i;
```

A
new called
Constructor called
delete called
Destructor called

✓ new called
Constructor called
Destructor called
delete called

C
Constructor called
new called

Question 14 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
        private:
                int x;
        public:
                Test(int x = 0) { this->x = x; }
                void change(Test *t) { this = t; }
                void print() { cout << "x = " << x << endl; }
```

A. x = 5

B. x = 10

C. Runtime Error

✓ Compilation Error

Question 15 [5 Marks]

Which of the following is true about **this** pointer?

A. It is passed as a hidden argument to all function calls.

✓ It is passed as a hidden argument to all non-static function calls.

C. It is passed as a hidden argument to all static functions.

D. None of the above

Question 16 [5 Marks]

What is the use of **this** pointer?

A. When a local variable's name is the same as a member's name, we can access the member using this pointer.

B. To return a reference to the calling object.

C. It can be used for chained function calls on an object.

✓ All of the above

Your submitted response was correct.

Question 17 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

int fun(int x = 0, int y = 0, int z)
{
        return (x + y + z);
}

int main()
{
   cout << fun(10);
```

A. 10

B. 0

C. 20

✓ Compilation Error

Question 18 [5 Marks]

Which of the following overloaded functions are **NOT** allowed in C++?

1.
```
int fun(int x, int y);
void fun(int x, int y);
```

2.
```
int fun(int x, int y);
static int fun(int x, int y);
```

3.
```
int fun(int *ptr, int n);
int fun(int ptr[], int n);
```

✓ All of the above

B All except (2)

C All except (1)

D (1) and (3)

Question 19 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
        protected:
            int x;
        public:
            Test(int i) : x(i) {}
            void fun() const { cout << "fun() const " << endl; }
            void fun() { cout << "fun() " << endl; }
```

A Compilation Error

✓ fun()
fun() const

C fun() const
fun() const

D fun()
fun()

Question 20 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Test
{
        private:
            static int count;
        public:
            Test& fun();
};
```

A. Compilation Error

B. 4 4 4 4

C. 1 1 1 1

✓ 1 2 3 4

Question 21 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class A
{
        protected:
            int x;
        public:
            A() : x(0) {}
            friend void show();
};
```

A. Compilation Error in show() because x is protected in class A.

✓ Compilation Error in show() because y is private in class b

C. The default value of A::x = 0
The default value of B::y = 0

D. None of the Above

Question 22 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base1
{
        public:
                Base1() { cout << " Base1's constructor called" << endl; }
};

class Base2
{
```

A. Compiler Dependent

✓ Base1's constructor called
Base2's constructor called
Derived's constructor called

C. Base2's constructor called
Base1's constructor called
Derived's constructor called

D. Compilation Error

Question 23 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base
{
        public:
                void show() { cout<<" In Base "; }
};

class Derived: public Base
{
```

A. Compilation Error at line bp->show().

✓ Compilation Error at line cout << bp->x.

C. In Base 10

D. In Derived 10

Question 24 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base
{
        public:
                virtual string print() const {
                        return "This is Base class";
                }
};
```

A. This is Derived class
This is Base class

B. This is Base class
This is Derived class

✓ This is Base class
This is Base class

D. This is Derived class
This is Derived class

Question 25 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base
{
        public:
                int x, y;
        public:
                Base(int i, int j) { x = i; y = j; }
};
```

A. 10 10

B. 0 0

✓ Compilation Error

D. Runtime Error

Question 26 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base
{
        protected:
                int a;
        public:
                Base() : a(0) {}
};
```

✓ Compilation Error at line: cout << a;

B 0

C Run-time Error

D Compilation Error at line: class Derived3: public Derived1, public Derived2

Question 27 [5 Marks]

In C++, **const** qualifier can be applied to:

1. Member functions of a class
2. Function arguments
3. A class data member which is declared as static
4. Reference variables

A 1, 2 and 3

B 1, 2 and 4

✓ All

D 1, 3 and 4

Question 28 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Point
{
        int x, y;
        public:
                Point(int i=0, int j=0) x(i), y(j) : {}
                int getX() const { return x; }
                int getY() { return y; }
};
```

A Garbage Values

B 0 0

C Compiler Error at line: cout << t.getX() << " ";

✓ Compiler Error at line: cout << t.gety();

Question 29 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

int main()
{
    const char* p = "12345";
    const char **q = &p;
    *q = "abcde";
    const char *s = ++p;
    p = "XYZWVU";
    cout << *++s;
```

A Compilation Error

✓ c

C b

D Garbage Value

Question 30 [5 Marks]

Choose the correct output from the options given below:

```
#include <bits/stdc++.h>
using namespace std;

class Base
{
        public:
            virtual void show() { cout<<" In Base\n"; }
};

class Derived: public Base
{
```

A
In Base
In Base

B
In Base
In Derived

✓
In Derived
In Derived

D
In Derived
In Base