



Question - 1

SCORE: 5 points

Medium

Python

What is the output of the following?

```
def foo(n):  
    for x in range(n):  
        yield x**3  
  
for x in foo(5):  
    print x,
```

- ☐ 0 1 2 3 4
- ☐ 0 3 6 9 12
- ☒ 0 1 8 27 64
- ☐ None of the above

Question - 2

SCORE: 5 points

Easy

Python

What is the output of the following?

```
print "foo" * 3  
print 2 ** 3
```

- ☐ foo foo foo
2 2 2
- ☐ foofoofoo
222
- ☐ foo foo foo
8
- ☒ foofoofoo
8

Question - 3

SCORE: 5 points

C

Medium

C++

Classes

Object Oriented Programming

Is it possible to create an object of an empty class type such as:

```
class xyz
{};
```

If so, what is the size of such an object?

- ☐ Yes, it is possible, and its size is zero.
- ☒ Yes, it is possible, and its size is greater than zero.

☐ No, it is not possible to create an empty class; it results in a compiler error.

- ☐ No, it results in a runtime error.

Question - 4

SCORE: 5 points

C++

Medium

Pointers

Memory Management

Will the following C++ program compile?

If yes, write the statement that helps you free the entire memory allocated to p.

```
#include<iostream>
using namespace std;

int main()
{
    int* p = new int[10];
    for ( int i = 0; i < 10; i++ )
    {
        p[i] = i;
    }

    for ( int i = 0; i < 10; i++ )
    {
        cout << p[i] <<" ";
    }

    // Write your statement here //

    return 0;
}
```

- ☐ Program does not compile.
- ☐ free(p);
- ☐ delete p;
- ☒ delete[] p;

Question - 5

SCORE: 5 points

Template

C++

Medium

What is the output of the following C++ program?

```
#include<iostream>
using namespace std;

template <typename T, int count>
void foo( T x )
{
    T val[count];
    for ( int i = 0; i < count ; i++ )
    {
        val[i] = x++;
        cout << val[i] << " ";
    }
};

int main()
{
    float y = 2.1;
    foo<float,3>(y);
}
```

- ☐ 2.1
- ☐ 3.1
- ☐ 4.1
- ☒ 2.1 3.1 4.1

Question - 6

SCORE: 5 points

C++

Medium

Classes

How do you declare an 'interface' class?

- ☒ By making all the methods pure virtual in a class.



By making all the methods abstract using the keyword 'abstract' in a class.

- ☐ By declaring the class as interface with the keyword 'interface'.

- ☐ It is not possible to create interface classes in C++.

Question - 7

SCORE: 5 points

Medium

C

C++

Memory Management

Which of the following can cause segmentation fault in a program?

- ☒ Attempting to access a nonexistent memory address
- ☐ Attempting to write read-only memory (such as code segment)
- ☐ Both a & b
- ☐ None of the above

Question - 8

SCORE: 5 points

C Medium C++ Bitwise

Which of the following expressions DO NOT exchange the value of two variables a and b?

- ☐ a=a+b; b=a-b; a=a-b;
- ☐ a=a*b; b=a/b; a=a/b;
- ☐ a=a^b; b=a^b; a=a^b;
- ☒ a=a&b; b=a|b; a=a|b;

Question - 9

SCORE: 5 points

C C++ Macro Medium

What is the output of the following program:

```
#include <stdio.h>
#define max 10+2

int main() {
    int i;

    i=max*max;
    printf("%d\n", i);
    return 0;
}
```

- ☒ 32
- ☐ 104
- ☐ 24
- ☐ 34

Question - 10

SCORE: 5 points

C++ Medium

What is the output of the following C++ program?

```
#include <iostream>
using namespace std;

int main ()
{
    int a, b;
    a = 1, 2, 3;
```

```
b = (3, 2, 1);

cout << a + b;
return 0;
}
```

- ☐ 1
- ☒ 2
- ☐ 3
- ☐ 4
- ☐ 6
- ☐ Program will not compile

Question - 11

SCORE: 5 points

C Medium C++ Memory Management

The malloc() function in C/C++ allocates memory at which time/location?

- ☐ compilation time on stack
- ☐ Linking time on stack
- ☐ Load time on heap
- ☒ Execution time on heap
- ☐ Execution time on stack

Question - 12

SCORE: 5 points

Classes Inheritance C C++ Medium Object Oriented Programming

What is the output of following program?

```
#include
using namespace std;

class Base
{
    int a;
    int b;
public:
    Base()
    { a = 0 ; b = 0; }

    Base(int a , int b)
    { this->a = a; this->b = b;}

    void displayData()
    {
        cout << a << b;
    }
};
```

```
class Derived
{
    int c;
    int d;
public:
    Derived()
    { c=0; d=0;}

    Derived(int c, int d)
    { this->c = c; this->d = d;}

    void displayData()
    {
        cout << c << d;
    }
};

int main()
{
    Base b(10,20);
    b.displayData();

    Derived d(30,40);
    d.displayData();

    Derived c;
    c.displayData();
    return 0;
}
```

- ☐ 1020102000
- ☐ 10200000
- ☒ 1020304000
- ☐ 102030401020

Question - 13

SCORE: 5 points

Adjacency matrix

Graph

Easy

Data Structures

Core CS

An adjacency matrix representation of a graph cannot contain information of:

- ☐ nodes
- ☐ edges
- ☐ direction of edge
- ☒ parallel edges