1. (10%) What is the output by the following program segment?

```
int x;
for( x = 1 ; x < 10 ; x += 2 )
{
   cout << "The value of x is " << x << endl;
}
cout << "The final value of x is " << x << endl;
```

2. (10%) What is the output by the following switch statement?

```
int x = 1;
switch (x)
{
     default:
             cout << "none ";
     case 1:
             cout << "one ";
     case 2:
             cout << "two ";
     case 3:
             cout << "three ";
     case 4:
             cout << "four ";
}
```

3. (10%) What is the output of the statement

```
            cout << mystery (15, 5) << endl;
```

assuming the following function definition of mystery?

```
int mystery(int x, int y)
{
  if ( y == 0 )
    return x;
  else if ( y < 0 )
    return mystery( x − 1 , y + 1);
  else
    return mystery( x + 1, y − 1 );
}
```

4. (10%) What is the output by the following code segment?

```
int array[3][4]= { { 1 , 2 , 3 , 4 } , { 2 , 3 , 4 } , { 3 , 4 } };
for( int i = 0 ; i < 3 ; ++i )
{
   for( int j = 0; j < 4 ; ++j )
   {
      cout << array[i][j] << " ";
   }
   cout << endl;
}
```

5. (10%) What is the output of the following program?

```
#include <iostream.h>
class T
{
public:
```

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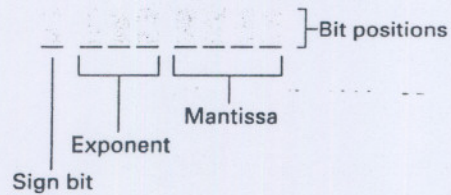
```
    ~T() { cout << "obj" << id << " destructor called." << endl;
private:
    int id;
};
void main()
{
    T obj1(1), obj2(2);
}
```

6. (10%) What problem would be encountered if the following program segment was executed on a machine in which values are represented in the eight-bit float-point format below?

```
X ← 0.01;
While ( X not equal to 1.00) do
{
  print the value of X;
  X ← X + 0.01;
}
```


7. (10%) Which of the following does not perform the following task: print correct if answer is equal to 7 and incorrect if answer is not equal to 7?

    (a) if (answer == 7)
          cout << "correct";

       else
          cout << "incorrect";

    (b) cout << answer == 7 ? "correct" : "incorrect";

    (c) cout << (answer == 7 ? "correct" : "incorrect");

    (d) answer == 7 ? cout << "correct" : cout << "incorrect";

8. (10%) The expression if (num != 65) cannot be replaced by:

    (a) if (num > 65 || num < 65).

    (b) if (!(num == 65)).

    (c) if (num – 65).

    (d) if (!(num – 65)).

9. (10%) Three of the following expressions have the same value. Which of the following expressions has a value different from the others'?

    (a) *&Ptr.

    (b) &*Ptr.

    (c) *Ptr.

    (d) Ptr.

10. (10%) Given that k is an integer array starting at location 2000, kPtr is a pointer to k and each integer is stored in 4 bytes of memory, what location does kPtr + 3 point to?

    (a) 2003.

    (b) 2004.

    (c) 2012.

    (d) 6000.

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