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File: Sample Midterm and Final Exam Questions, Set 1

Computer Science 221

Practice Questions - Set 1

Pointers & Dynamic Data

Question 1

There are 3 errors in the following code fragment. List each erroneous statement and briefly describe the error in it.

```
const int NUM = 777;
int main(void)
{
    int x = 10;
    int *p = NUM, *q = 0;

    *p = x;
    x = *q;
    &x = NUM;
}
```

Question 2

Find 3 errors in the following function and give brief an explanation for each error.

```
int* foo( int& n)
{
    int a[10];

    for (int i = 0; i <= 10; i++)
        a[i] = i;
    if (0 <= n && n <= 10)
        return a + n;
    return NULL;
}
```

Question 3

Consider the following statements:

```
int x = 5;
int y = 3;
int *p, *q;
p = &x;
q = &y;
y = *p;
p = q;
*p *= *q;
```

Draw a diagram showing the values of x, y, p, and q, *after* the execution of the above statements.

Question 4

Write a set of statements that creates a dynamic array A of 100 integers and sets their values to 0.

Question 5

Suppose SomeClass is defined as follows:

```
class SomeClass {
    private:
        string * sa;
        int * ia;
        int size;
    public:
        SomeClass( int n )
        {
            sa = new string[n];
            ia = new int[n];
            size = n;
        };

        ~SomeClass();
};
```

where `string` is the class of strings you're familiar with from the lectures, assignments, and tutorials. Write the code for the **destructor** of this class. (Omit this question, if destructors were not covered in the lectures/tutorials.)

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