

CS 10061 Introduction to Computer Science
Section 1
Spring 2010
Call Number 11591

Final Exam
May 13, 2010

YOUR NAME: _____

1. (15 points) Write code to output the sequence of numbers:

1 4 9 $i*i$ until 100

```
for(int i=1;i<=10;i++) cout << i*i << endl;
```

2. (10 points) What is output by this code?

```
for(int i=2;i<100;i=i*i){  
    cout << i << " ";  
}  
cout << endl;
```

It will output:

2 4 16 <endl>

3. (15 points) Write a function definition for a void function that takes three integer values and returns their sum and product (note that we need two additional parameters to return the sum and product)

```
void sumprod(int a,int b,int c,int& sum,int& product){
    sum = a+b+c;
    product = a*b*c;
}
```

4. (15 points) Write a driver program to test the function:

```
double unitPrice(int length, int width, double price)
{
    double area = length * width;
    return (price/area);
}
```

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

int main()
{
    int len,width;
    double price;
    while(1){
        cout << "Input length, width and price";
        cin >> len >> width >> price;
        cout << "Output: " <<
            unitPrice(len,width,price) << endl;
    }
    return 0;
}
```

5. (15 points) Given the declaration:

```
int squares[20];
```

Write a code segment that sets each element of the array to the value:

1 4 9 16 25 ... (until 400) (i.e. The first is set to 1, the second to 4 and so on)

```
for(int i=1;i<=20;i++)
    squares[i-1] = i*i;
```

6. (15 points) Write a function definition that takes an int array and outputs it backwards.

```
Void outback(const int a[],int size){
    for(int i=size-1;i>=0;i--)
        cout << a[i] << " ";
    cout << endl;
}
```

7. (15 points) Write a program segment to read in two strings (of maximum length 30) and output them separated by one space. Note that the strings may contain blanks.

```
char a[31],b[31];
cout << "Input two strings on separate lines";
cin.getline(a,31);
cin.getline(b,31);
cout << a << " " << b << endl;
```