EECE.2160: ECE Application Programming
Fall 2018

Lecture 15: Key Questions
October 11, 2018

QUESTIONS:

1. Describe the basic use and syntax of functions, including return types and arguments.

2. What is a function prototype? When and why is it necessary?

3. Explain the idea of scope and how it relates to functions. Also, explain what happens when function arguments are passed by value.

You may wish to refer to the following example:

```c
#include <stdio.h>
#include <math.h>

double hyp(double a, double b);

void main()
{
  double x,y,h;
  printf("Enter two legs of triangle: ");
  scanf("%lf %lf",&x,&y);
  h=hyp(x,y);
  printf("Trgle w legs %lf and %lf has hyp of %lf\n",
          x,y,h);
}

double hyp(double a, double b)
{
  double sum, result;
  sum = a*a + b*b;
  result = sqrt(sum);
  return result;
}
```

EXAMPLES:

1. What does the following program print?

```
#include <stdio.h>

int f(int a, int b);              // Function prototype

int main() {
    int x = 1;
    int y = 2;
    int result1, result2, result3;

    result1 = f(x, y);
    result2 = f(y, result1);
    result3 = f(result1, result2);

    printf("x = %d, y = %d\n", x, y);
    printf("Result 1: %d\n", result1);
    printf("Result 2: %d\n", result2);
    printf("Result 3: %d\n", result3);

    return 0;
}

int f(int a, int b)        // Function definition
{
    int i;                 // Loop index
    int r = 0;             // Result

    for (i = 0; i < a; i++)
        r += b;

    return r;
}
```