EECE.2160: ECE Application Programming

Fall 2019

Lectures 3 & 4: Key Questions
September 9 & 11, 2019

QUESTIONS:

1. List the four basic data types in C, as well as some valid and invalid values for each type.
2. Briefly explain valid character constants.
3. What are the four key characteristics of a variable?
4. What rules must be followed when naming variables?
5. Show how variables are declared and how values are assigned to them.
6. What are the basic binary arithmetic operators supported by C?
7. Explain the modulus operator (%).
8. What determines the type of a binary operation's result?
9. What is the difference between division of integers and floating-point types?
10. Explain the operation of the unary negation operator (e.g., `-x`).
11. Describe the use of `printf()` to print numeric values and characters.

EXAMPLES:

1. What values do w, x, y, and z have at the end of this program?

```
int main() {
    int w = 5;
    float x;
    double y;
    char z = 'a';
    x = 8.579;
    y = -0.2;
    w = x;
    y = y + 3;
    z = w - 5;
    return 0;
}
```

2. Evaluate each of the following expressions, including the type (`int` or `double`) in your answer.

a. `19/3`

b. `3/19`

c. `19%3`

d. `3%19`

e. `5 + 7/2`

f. `5.0 + 7/2`

g. `5 + 7.0/2`

h. `5 * 3 % 3 / 6 + 14 + 10 / 2`

```
5 * (3 % 3) / 6 + 14.0 + 10/3
```