

EECE.2160: ECE Application Programming

Summer 2017

Lecture 2: Key Questions

May 23, 2018

QUESTIONS:

1. What are the basic binary arithmetic operators supported by C?
2. Explain the modulus operator (%).
3. What determines the type of a binary operation's result?
4. What is the difference between division of integers and floating-point types?
5. Explain the operation of the unary negation operator (e.g., -x).
6. Describe the use of `printf()` to print numeric values and characters.
7. Describe the use of `scanf()` for reading input values into variables.
8. How does `scanf()` handle whitespace and other characters in format string?
9. What is the purpose of the `scanf()` return value?

EXAMPLES:

1. Evaluate each expression below, 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. $5 * 3 \% 3 / 6 + 14 + 10 / 2$

i. $5 * (3 \% 3) / 6 + 14.0 + 10/3$

2. Show the output of each of the following short programs:

a.

```
#include <stdio.h>
void main()
{
    int i=2, j=3, k, m;
    k = j * i;
    m = i + j;
    printf("%d %d %d %d\n", i, j, k, m);
}
```

b.

```
#include <stdio.h>
void main() {
    double f, g;
    f = 1.0 / 4.0;
    g = f * 20;
    printf("f = %lf, \ng = %.2lf\n", f, g);
}
```

c.

```
#include <stdio.h>
void main() {
    int a = 5, b = 2;
    printf("Output%doesn't%make%sense", a, b, a + b);
}
```

3. Assume you have the following variables: `int i; double d; char c;`
If your program contained each of the following calls to `scanf()`, what values would be read into the appropriate variables, given user input?

a. Input: 34 5.7
`scanf("%d%lf", &i, &d)`

b. Input: 34 5.7
`scanf("%d %lf", &i, &d)`

c. Input: 34 5.7
`scanf("%lf%d", &d, &i)`

d. Input: 34 5.7
`scanf("%d%c", &i, &c)`

e. Input: 34 5.7
`scanf("%d %c", &i, &c)`