**Talen Phillips**

**EE 107-1**

**Homework 2**

**Due: 11FEB2013**

1) a) Evaluate the following expressions with 7 and 22 as operands.

22 / 7

7 / 22

22 % 7

7 % 22

Now repeat for the following operand pairs:

b) 15,16

c) 3,23

d) -3,16

Note: since it was not specified, and since half of the operations compute remainders, I have chosen to represent the answers as integers.

a) 22 / 7 = 3 7 / 22 = 0 22 % 7 = 1 7 % 22 = 7

b) 15 / 16 = 0 16 / 15 = 1 15 % 16 = 15 16 % 15 = 1

c) 3 / 23 = 0 23 / 3 = 7 3 % 23 = 3 23 % 3 = 2

d) -3 / 23 = 0 23 / -3 = -7 -3 % 23 = -3 23 % -3 = 2

2) Given the constants and variable declarations

#define PI 3.14159

#define MAX\_I 1000

double x,y;

int a,b,i;

indicate which of the following statements are valid and find the value stored by each statement. Also indicate which statements are invalid and why. Assume that a=3, b=4, y=-1.0.

a) i = a % b;

b) i = (989 – MAX\_I) / a;

c) i = b % a;

d) x = PI \* y;

e) i = a / -b;

f) x = a / b;

g) x = a % (a / b);

h) i = b / 0;

i) i = a % (990 – MAX\_I) / a;

a) "i = a % b;" is valid, and the result is i = 3.

b) "i = (989 – MAX\_I) / a;" is valid, and the result is i = -3.

c) "i = b % a;" is valid, and the result is i = 1.

d) "x = PI \* y;" is valid, and the result is x = -3.141590.

e) "i = a / -b;" is valid, and the result is i = 0.

f) "x = a / b;" is valid, and the result is x = 0.000000.

g) "x = a % (a / b);" is not valid.

h) "i = b / 0;" is not valid.

i) "i = a % (990 – MAX\_I) / a;" is valid, and the result is i = 1.

3) What output do the following calls of printf() produce?

(a) printf(“%.3s”, “Blue moon!”);

(b) printf(“%05d”, 123);

(c) printf(“%-#6x”, 123);

(d) printf(“%-12.7e”, 0.123456789);

a) "printf(“%.3s”, “Blue moon!”);" outputs "Blu"

b) "printf(“%05d”, 123);" outputs "00123"

c) "printf(“%-#6x”, 123);" outputs "0x7b"

d) "printf(“%-12.7e”, 0.123456789);" outputs "1.2345679e-001"

4) Write a program that accepts a date from the user in the form mm/dd/yy (where the month and/or day could be either one or two digits) and then displays it in the form yyyymmdd where the month and/or day is shown always with two digits. Assume 21st century date:

Example:

Enter a date (mm/dd/yy): 2/24/13

You entered the date 20130224

/\* Talen Phillips

"Date Formats"

11FEB2013

Description: This program takes a date inputted by a user, and reformats it. \*/

#include <stdio.h> /\* header file \*/

int main (void) /\* only one function needed for this program \*/

{

int y, m, d; /\* defining variables \*/

printf("Enter a date (mm/dd/yy): ");

/\* displaying instructions \*/

scanf("%i/%i/%i", &m, &d, &y);

/\* assigning values from user inputs to variables \*/

printf("\nYou entered the date: 20%02i%02i%02i.\n", y, m, d);

/\* outputting the results with leading zeros if necessary \*/

return 0; /\* end of program \*/

}

