UMass Boston CS 240 Test 1 Practice Questions

Posted on September 24, 2019

Name: ________________________ Student Number: ________________________

By signing, I certify that I have neither given nor received unauthorized assistance on this test.

Signature ________________________

Instructions

1. Turn off all digital devices.
2. One cheat sheet of your own is allowed.
3. Data type storage specification is on first page.
4. Precedence, ASCII and printf reference table are allowed.

Data Type Specification

- char: 1 byte
- int: 4 bytes
- short: 2 bytes
- long: 8 bytes
- long long: 8 bytes
- float: 4 bytes
- double: 8 bytes
- signed int: is int
- unsigned int: or just unsigned
1. You are user99, and your current working directory is /home/user99/hw3.

```
/  
  +-- home  
    +-- ming  
        |   +-- 240  
        |       |   |-- hw1  
        |       |   |       +-- hello.c  
        |       |   |       |       +-- hw3  
        |       |   |       |       |   |-- itox.c  
        |       |   |       |       |   |   |-- itox.h  
        |       |   |       |       |   |   |   |-- itoxDriver.c  
        |       |   |       |       |   +-- test.txt  
    +-- user99  
        +-- hw3  
            |   +-- itoxDriver.c  
            |                   
            +-- homework3  
                +-- itoxDriver.c  
```

(a) Copy both itox.c and itox.h from Ming’s directory to your hw3 directory in one command.

(b) What is the command to compile hello.c into executable hello.out

(c) What is the option that asks the compiler to display all warning messages?

(d) Delete your homework3 directory in one command.

(a) cp /home/ming/240/hw3/{itox.c,itox.h} /home/user99/hw3

or

     cp /home/ming/240/hw3/itox.c /home/ming/240/hw3/itox.h /home/user99/hw3
(b) gcc -o hello.out hello.c

(c) -Wall

(d) rm -r /home/user99/homework3
2. Are the following identifiers valid C variable names? If you answer no, explain why.
   (a) continue
   (b) finished!
   (c) Volatile
   (d) year-2018
   (e) __letMeThink
3. (a) int i = -5;

    printf("%x", i);

What is the output from the printf statement and why?

    ffffffff

Because negative numbers is stored in its 2’s complement form in C. And -5’s 2’s complement is ffffffff.

(b) Complete this function so that the char array rev contains the reversed string of the char array from. rev and from have the same length, of course. Close the braces when you are done.

    void reverse(char rev[], char from[])
    {
        int l=0;
        while (from[l] != '\0')
            l++;
        for (int i = 0; from[i] != '\0'; i++)
            rev[i] = from[l-i-1];
    }
4. char msg[] = "\"hello\"\n";

double x = 8.0;
double y = x / 3;

printf("%s", msg);
printf("%6.3lf\n", y);

(a) (5 points) How many bytes of memory are allocated for msg?
(b) (10 points) What is the output from the two printf statements?
(a) 9 bytes
(b) "hello"
    2.667
5. unsigned char beagle = 0xCC;
   unsigned char pug = 0x44;
   char puggle = beagle / 6 >= 32 || pug - 25 % 10 >> 4;

   printf("beagle = %u, pug = %u\n", beagle, pug);
   if (puggle)
   
   printf("result = puggle\n");

(a) (5 points) Fully parenthesize this expression to reflect the precedence.

   beagle / 6 >= 32 || pug - 25 % 10 >> 4

(b) (10 points) What is the output from the two printf statements?

(a) (((beagle / 6) >= 32) || ((pug - (25 % 10)) >> 4))

   = (34 >= 32) || (63 >> 4) = 1 || 3 = 1

(b) beagle = 204, pug = 68
    result = puggle
6. Quinary (base-5, pental) numbers.
   (a) Convert the decimal number $345_{10}$ to quinary.
   (b) Convert the quinary number $1324_{5}$ to decimal.
   (c) Add these two quinary numbers in quinary: $1324_{5}$ and $11234_{5}$. Show your work.