CSCI 3232 Systems Software Assignment 2

Upload all your files to the correct dropbox in Folio before the deadline --- **11:30PM Jun 25, Friday, 2021. Note: For any program source codes you are asked to write, put them into separate TEXT files with appropriate extensions (.c, .cpp, .h, .sh) as you would compile them under Ubuntu. Do NOT put your codes in MS Word or PDF or any similar Word-Processing file. If Folio complains, you can add .txt extension to the files. For example, myfile.c.txt, myfile.sh.txt.**

1. (20 points) Which is true of the following C program? You should be able to tell the answer without compiling or running it (the same applies for all other similar questions).

#include <stdio.h>

int main()

{

int x=5;

int \*q=&x;

(\*q)+=1; x++;

int y=x\*((\*q)-1);

printf("y is %d\n",y);

return 0;

}

a. compile error; b. runtime error; c. output “y is 20”; d. output “y is 24”; e. output “y is 25”; f. output “y is 30”; g. output “y is 36” h. output “y is 42”

2. (20 points) What is the output of the following C program? (review the comment in question 1)

#include <stdio.h>

int main()

{

int x=5;

int \*q=&x, \*q2=&x;

(\*q)-=2; (\*q2)+=3;

int y=(\*q2)\*((\*q)-2);

printf("y is %d\n",y);

return 0;

}

3. (10 points) What is the output of the following C program? (review the comment in question 1.)

#include <stdio.h>

int main()

{

int x=23,y=8;

int q=x/y,r=x%y,r2=y%x;

double v=(double)x/y;

printf("q=%d,r=%d,r2=%d,v=%f\n",q,r,r2,v);

return 0;

}

4. (20 points) Write a C program A2p4.c to print all the ASCII characters with values between 33 and 126 inclusive. Print each of the characters and its ASCII value in one line. You must use loops to achieve the desired printing results. The total number of times that the keyword *for* and *while* appear cannot exceed 1. Part of a sample run can look like the following:

[kwang@computer][~/temp]$ ./A2p4

! ASCII value:33

" ASCII value:34

# ASCII value:35

$ ASCII value:36

% ASCII value:37

& ASCII value:38

…..(additional output here)

5. (15 points) Write a C program A2p5.c to print all 2 by 2 matrices with elements -1 and 1 in lexicographic order. You must use loops to achieve the desired printing results. The total number of times that the keyword *for* and *while* appear cannot exceed 8. Part of a sample run can look like the following:

[kwang@computer][~/temp]$ ./A2p5

-1 -1

-1 -1

-1 -1

-1 1

-1 -1

1 -1

…..(additional output here)

6. (15 points) Write a C program A2p6.c to read from stdin an integer *n* between 2 and 10 inclusive. Then the program should print a pattern of stars (\*) that look like the ones shown in the following sample runs. You must use loops to achieve the desired printing results. The total number of times that the keyword *for* and *while* appear cannot exceed 2.

[kwang@computer][~/temp]$ ./A2p6

enter some integer (2~10): 3

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[kwang@computer][~/temp]$ ./A2p6

enter some integer (2~10): 2

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[kwang@computer][~/temp]$ ./A2p6

enter some integer (2~10): 4

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checklist of the four files to be submitted: one solution file for 1~3, A2p4.c, A2p5.c, A2p6.c