**CSC3320 System Level Programming**

**Homework 3**

Due at 11:59 pm on Sunday Oct. 23, 2016

**Part I: Answer the following questions**

1. The quotes are very tricky in Unix Shell. Please describe the differences among double quote " , single quote ' and grave accent ` .

2. To access the value of one variable, what special symbol we should use before the name of variable? And what do $1 and $2 mean in shell script? What variable can be used when we want to get all the arguments on command? What variable contains the return value of last command?

**Part II: Multiple Choices**

In each question below, please select the correct answer for variable x's value after performing corresponding command. Assume x has an initial value 1 at each question.

Note: If the command has syntax error, please select the answer "Syntax error".

1. $x=x+1

a. 2

b. 1+1

c. x+1

d. Syntax error

e. None of above

2. $x=$x+1

a. 2

b. 1+1

c. $x+1

d. Syntax error

e. None of above

3. $x= 'expr $x + 1 '

Note: ' is a single quote

a. 2

b. 1+1

c. expr $x + 1

d. Syntax error

e. None of above

4. $x= `expr $x + 1 `

Note: ' is a single quote

a. 2

b. 1+1

c. expr $ x + 1

d. Syntax error

e. None of above

5. $x= `expr $x \* 2 `

Note: ' is a single quote

a. 2

b. 1 \* 2

c. expr $ x \* 2

d. Syntax error

e. None of above

6. $x= `expr $x \\* 2 `

Note: ' is a single quote

a. 2

b. 1 \* 2

c. expr $ x \\* 2

d. Syntax error

e. None of above

7. $x= `expr $x > 2 `

Note: ' is a single quote

a. 1

b. 0

c. expr $ x > 2

d. Syntax error

e. None of above

8. $x= `expr $x \> 2 `

Note: ' is a single quote

a. 1

b. 0

c. expr $ x > 2

d. Syntax error

e. None of above

9. x=`expr "CSC3320" : 'CSC\*' `

a. 1

b. 0

c. 7

d. 3

e. None of above

10. x=`expr "CSC3320" "CSC3320" `

a. 1

b. 0

c. 7

d. 3

e. None of above

**Part III: Write the output (and function) for following shell script and C statement.**

1)

**$pwd**

/Home

**$ls**

HW3.pdf q1.sh

**$cat q1.sh**

if [ -e ~/HW3.pdf ]

then

echo The full path of HW3.pdf is `pwd`

else

echo HW3 does not exist in current directory.

fi

**$./q1.sh**

**Output:**

2)

**$cat q2.sh**

#!/bin/sh

res=0

x=0

# check command line

if [ $# -lt 2 ] ; then

echo "Oops! I need atleast 2 command line args"

echo "Syntax: $0: number1 number2 ... numberN"

echo "Example:$0 56 66 34"

exit 1

fi

for i in $@

do

x=`expr $x + $i `

done

res=`expr $x / $# `

echo "res = $res"

**$./q2.sh 3**

**Output:**

3)Continue on question 2)

**$./q2.sh 12 4 8**

**Output:**

**Function:**

4)

**Note: use ␣ to represent a space.**

(a) printf("%6d,%4d", 25, 1234);

**Output:**

(b) printf("%.4f", 3.1415926);

**Output:**

(c) printf("%8.5e", 20.253);

**Output:**

(d) printf("%-8.5f", 20.253);

**Output:**

**Part VI: Writing programs**

1) Write a C program that prompts the user to enter a telephone number in the form (999)999-9999 and then displays the number in the form 999-999-999:

Enter phone number [(999)999-9999]: (404)123-4567

You entered 404-123-4567

2) Write a shell script to finish the same task as in above question.

3) Write a program that formats product information entered by the user and calculate the total amount of purchase.

Enter item number:583

Enter unit price:13.5

Enter quantity:2

Enter purchase date (mm/dd/yyyy):09/15/2016

Item Unit Price QTY Purchase Date Total Amount

583 $ 13.50 2 9/15/2016 $ 27.00

The item number, quantity and date should be left justified; the unit price and total amount should be right justified. Hint: Use tabs to line up the columns.

***Submssion***:

* Upload an electronic copy (MS word or pdf) of your answer sheet to the folder named “**HW3**” of the dropbox in the iCollege system.
* **Please add the homework number and your name at the top of your answer sheet.**
* Name your file in the format of HW3\_FisrtnameLastname (eg. HW3\_YuanLong.docx, HW3\_YuanLong.pdf)