**CSC3320 System Level Programming**

**Homework 2**

**(41 points in total)**

Due at 11:59 pm on Tuesday Sep. 13, 2016

**Part I: Answer the following questions (13 in total)**

1. What are the differences among **grep**, **egrep** and **fgrep**? 3 point

grep does not support extended regular expression in default. 1 point

egrep does support extended regular expression. 1 point

fgrep can be used to search a fixed string. 1point

2. What is **tar** in Unix? And how to use it? 3 point

For achiving. 1.5 point

tar -cvf tarfilename filelist 0.5 point

create tar file

tar -xvf tarfilename 0.5point

extract files from tar file

tar -tvf tarfilename filelist 0.5 point

show content in tar file

3. How to find files by names? And how to find files containing specific texts? 2 point

find path -name 'filename' 1 point

grep text file 1 point

4. What are the default separators for utility **awk** and **sort**? How to manually define a new separator for them? 3 point

Default separators: whitespace/tab 1 point

awk -Fc 1 piont

sort -tc 1 point

5. How to switch users in terminal? What is **sudo**? 2 point

Switch: su 1 point

Sudo : Execute some commands as super user 1 point

**Part II: Multiple Choices (2 points for each, 10 in total)**

1. What is the output of the following sequence of bash commands:

**echo 'Hello World' | sed 's/^/Welcome/g'**

a. WelcomeHello World

c. HelloWelcome World

d. Hello World Welcome

e. Welcome

Answer: a

2. Which awk command outputs the fifth field of lines that have at least five fields:

a. 5 <= NF { print $5 }

b. FN >= 5 { print $5 }

c. /$5/ { print $4 }

d. /$5 != ""/ { print $4 }

Answer: a

3. What is the output on your screen of this command line:

echo good | sed -n 's/Good/bad/p'

a. no output on screen

b. Good

c. Bad

d. bad

e. good

Answer: a

4. Which awk command outputs all lines where a dollar sign $ appears at the beginning of line?

a. /^$/{print $0}

b. /$$/{print $0}

c. /$^/{print $0}

d. /^\$/{print $0}

Answer: d

5. Which command displays only the top 5 lines of file?

a. sed -e '5 d' file

b. sed -n '5 p' file

c. sed -n '1,5 p' file

d. sed -e '5 $' file

e. sed -n '/5/ p' file

Answer: c

**Part III: Write output of following commands and describe the function of commands (the last one only in each question).(18 point in total)**

**For (1-4): output 2 points, function 1 point**

**For (5-5): output 1 point, function 2 points**

1)

$ cat float

Wish I was floating in blue across the sky, my imagination is strong,

And I often visit the days

When everything seemed so clear.

Now I wonder what I'm doing here at all...

$ cat h1.awk

NR==2||NR==4{Print NR " " $0}

$ awk -f h1.awk float

**Output:**

**Function:**

Answer:

2 And I often visit the days

4 Now I wonder what I'm doing here at all...

==Output the number of fields and content for line 2 and line 4.

2)

$ awk '{print $1, $NF}' float

**Output:**

**Function:**

Answer:

Wish strong,

And days

When clear.

Now all...

==Output the the first field and last field.

3)$ cat h2.awkBEGIN { print "Start to scan file", FILENAME}

{print NR","NF}END {print "END"}$ awk -f h2.awk float

**Output:**

**Function:**

Answer:

Start to scan file

1,13

2,6

3,5

4,9

END

==Output the line number and number of fields for each line.

4)

$ sed '/\.\.\./d' float

Output:

My imagination is strong,

**Output:**

**Function:**

Answer:

Wish I was floating in blue across the sky, my imagination is strong,

And I often visit the days

When everything seemed so clear.

==Remove the lines containing …

**5)**

$ ls \*.awk| awk '{print "cp "$1" "$1".new"}' |sh

Notes: sh file runs file as a shell script.

**Output:**

**Function:**

Answer:

==Copy all .awk files and rename them by adding extension .new

**6)**

**$mkdir test1 test2 test3**

**ls -l | grep '^d' | awk '{print "rm -r "$9}' | sh**

**Output:**

**Function:**

Answer:

==Remove all subdirectories in current directory.

***Submssion***:

* Upload an electronic copy (MS word or pdf) of your answer sheet to the folder named “**HW1**” 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 HW1\_FisrtnameLastname (eg. HW1\_YuanLong.docx, HW1\_YuanLong.pdf)