Spring 2014, CS288 Test 1, 2:30-3:45 pm, Fri, 2/21/2014, GITC1400

Name:

Make sure you have five pages. Do not take any page(s) with you. Any missing page(s) will result in failure in the exam. This exam is closed book close notes. Do not exchange anything during the exam. You all have the same exam. **No questions will be answered during the exam, including typos.** I don't want to give different answers to different people. If you are in doubt, briefly state your assumptions below, including typos if any.

I have read and understood all of the instructions above. On my honor, I pledge that I have not violated the provisions of the NJIT Academic Honor Code.

Signature: **Date:**

Questions 1-15: 4 points each

1. `x=1; ((--x)); echo $x;` Find the output.
   (a) -1 (b)0 (c) 1 (d) errors (e) none of the above

2. Write a Bash command to change the permission of a file `f` such that the user can read/write/ execute while others can read only. Use *octal* numbers only as discussed in class. Use of any other format will receive no credit.

3. Given `a=bcd`, write a Bash command to find the number of characters in `a`.

4. Given `lst=(this is a test)`, fill in the blank to print the indices of items in `lst`.

   ```
   for i in ${_____}; do echo $i; done
   ```

5. Given `lst=(1 2 3)`, `echo $lst` will print:

6. Given `l1=(1 2)` and `l2=(x y)`, write a Bash command to obatin `lst=(x y 1 2)`

7. Given `f()` and `main()`, what is the output when `main` is called?

   ```
   function f() { local p=$2; q=1; r=$1; }
   function main() { p=1; q=2; r=3; f $p $q $r; echo $p $q $r; }
   ```

   a)1 1 1 b)1 1 2 c)3 3 2 d)3 1 1 e)None of the above

8. Given f() and main() below, calling "main 3 2 1" will print:

```
function f() { local y=$1; local z=$2; echo $x $y $z; }
function main() { local x=$1; y=$2; z=$3; f $x $y $z; }
```

a)3 2 3 b)3 2 2 c)3 3 2 d)3 1 1 e)None of the above

9. Determine the output for the Bash statements: `x=23; y=223; [[ $x < $y ]] && echo yes || echo no`;

(a)yes (b)no (c)command not found (d) errors (e)none of the above

10. Write a grep statement to find lines that have matching tags such as the one below using a backreference.

```
<h1>Matching tag</h1>
<h2>Matching tag</h2>
```

11. Assuming the file `fruits.txt` shown right has eight lines, write a grep command to find the lines containing `ea`.

12. Write a grep command to find the lines containing *no* numbers for `fruits.t`

```
apple
orange
pear
pea123ch
grape
ba456nana
blueberry
plu678m
```

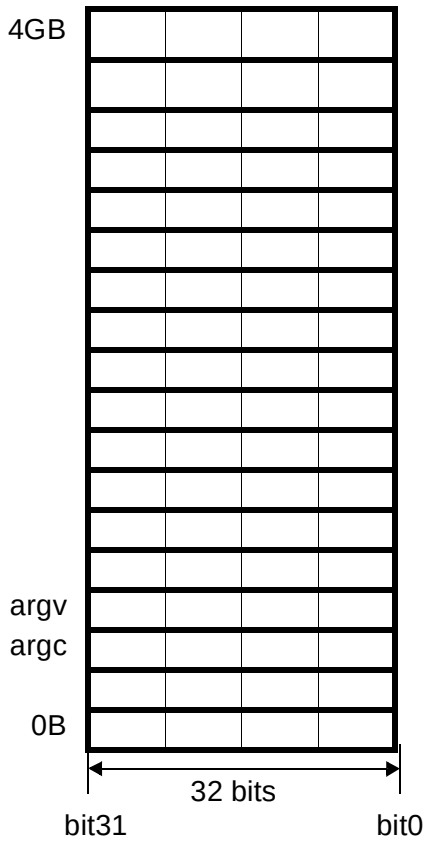
13. Write a Bash command to fetch the index page located at http://www.njit.edu and save as `index.html` on your current directory.

14. Given `s='<span class="viewcount">/acct/1,696,807/name/</span>'`, write a Bash command to extract the numbers without commas. Your command must work for any number of numbers and commas. Answers based on fixed nubmer of numbers and commas will receive no credit.

15. Write a Bash command to extract the title from the line below:

```
<div><span> dir="ltr" class="title" title="OK Go - Here It Goes
Again"</span><span class="stat">by <span class="yt-user-name ...
<span class="viewcount">14,631,561 views</span></div>
```

16. (10 points) Assuming `mycmd` is an executable file, you type "`mycmd this is cs288`" and hit enter. Show the contents of memory for argc, argv, intermediate pointers, and the parameters in the memory map. Use arrows to indicate the relationship between them.



17. (15 points) Consider `myfile.txt` below which contains the file information of a directory resulting from `ls -l`:

```
-rw-r--r-- 1 CS288 DS882 7950 Dec 9 05:57 automode.o
drwxr-xr-x 1 CS288 DS882 0 Jul 22 2013 awk
-rwxr-xr-x 1 CS288 DS882 8227 Sep 21 2012 backup.sh*
-rwxr-xr-x 1 CS288 DS882 14877 Mar 22 2013 bigram.exe*
-rw-r--r-- 1 CS288 DS882 6555 Dec 9 05:57 binmode.o
-rwxr-xr-x 1 CS288 DS882 19485 Mar 22 2013 code.exe*
lrwxrwxrwx 1 CS288 DS882 14 Dec 12 17:45 cpp
-rw-r--r-- 1 CS288 DS882 7508 Dec 9 05:57 crt0.o
```

(a) Write a Bash function to compute the average size of files in that directory.

(b) Write a Bash function to identify those files with file size greater than the average you computed above.

18. (15 points): Write a Bash script to traverse a directory tree in *breadth*-first order using *iteration*. A seed directory is passed as a command line parameter. Return the list of *all* sub directories in absolute path, including all intermediate directories.