ECS 40   **Practice Midterm #1 (125 points)**

Commands with options you should know: alias, bg; cd; echo -n; fg; jobs, shift; source; umask, wait.
Utilities with options you should know: chmod octal; compress -c; diff -r; find -name -type -exec –print -size; grep - ilnRvx ; gzip; head –n, kill -signalID; ln –s; ls -alR; pkill, ps -eulf; rename, sleep; sort –nrtk; tail –n, tar -cxtvfzZ; tee, trap, uncompress -c; wc -lwc; zip, and how to access portions of string variables.
You should recognize the meaning of awk commands , sed commands, and Bash shell control structures.

All utilities, commands, and shell scripts for this midterm should be based on the tcsh shell.

1.   (5 points) Write a command line to display all the files in your hw1 directory and the all of the files in its subdirectories.

2.   (5 points) Write a command line to display only the files in your hw1 directory, and not the files in its subdirectories.

Given the following session answer questions 3 to 5.
```
dec63% ps
  PID TT STAT    TIME COMMAND
 1262 p0 Z       0:00 <exiting>
  753 p0 S       0:04 -tcsh (tcsh)
 1236 p0 T       0:00 tcsh d.sh
 1241 p0 T       0:00 tcsh e.sh
 1246 p0 T       0:00 tcsh d.sh
 1251 p0 T       0:00 tcsh e.sh
 1256 p0 T       0:00 tcsh d.sh
 1261 p0 T       0:00 tcsh e.sh
 1264 p0 R       0:00 ps
dec63%
```

3.   (8 points) Explain what the Z, S, T, and R each mean in the STAT column of the output from a ps command.

4.   (9 points) Write a command line that would print out the information about the first two processes that have a status of T, i.e., 1236 and 1241

5.   (8 points) Write a command line that would print out the number of processes that do not have status T, i.e., the output would be 3.

6.   (5 points) Write a command line to archive into a file, named arch, all of my header files and C source code files in my current directory.

7.   (5 points) I've created a C source code file using a word processor with a umask of 425. What will be its permissions?

8.   (5 points) Most system executables are stored in subdirectories named bin. Write a commandline that lists all of the bin directories on the computer.

9.   (25 points) You have a C++ project that uses four files: 1) car.cpp; 2) car.h; 3) body.cpp; and 4) body.h; . Write a
      make file that creates an executable named automobile based on the following information:
.
                car.cpp depends on body.h, and car.h.
                body.cpp depends on body.h

10.   (35 points) Given the following script answer the questions..

```
1.   #! /bin/bash
2.   var=`echo $@ | awk '{print $NF}' `

3.   if [ -d $var ] ; then
4.     for var2 in $@ ; do
5.        if test $var2 != $var ; then
6.           ln $var2 $var/$var2
7.           rm $var2
8.        fi
9.     done # for
10. else
11.    ln $1 $2
12.    rm $1
13. fi
```

a) (3 points) What does line 1 do?

b) (8 points) What does line 2 do?

c) (3 points) What does line 3 do?

d) (3 points) What does line 4 do?

e) (3 points) What does line 5 do?

f) (3 points) What does line 6 do?

g) (3 points) What does line 11 do?

h) (9 points) What does the script, as a whole, script do?