

Important: This is an open book test. You can use any books, notes, or paper, but not exchange anything with other students. You are not allowed to use any electronic/communication devices, including a calculator and e-books. *Do not log into the computer during the test. Switch off your cell phones. Any device with an ON-OFF switch should have its switch in the OFF position.* Any calculations and rough work can be done on the backside of the test pages. You will lose five points for not writing your name.

1. [6 pt] What is the number in parenthesis for the command/function `chmod(2)` refer to? How can you use it in your work in Unix (specify complete command)?

2. [6 pt] Give the command to swap two characters in `vi`.

3. [6 pt] When I perform `ls -l`, I get the following output for my file:

```
-rw-r--r--  1 bhatias  sasl      175812 Feb 14 17:51 myfile
```

Give me the command to print only the permissions and file names to `stdout`.

4. [8 pt] An amount of money can be in one of the following formats:

\$90.82
\$1,087.64
\$97.00
\$0.74
\$567.98

Give me a regular expression to recognize any of these. Assume that the amount will always be less than 10,000.00.

5. [10 pt] I just transferred an entire directory to my Unix box where I have a utility to work with files that have the extension `.jpeg`. The files I transferred could be anywhere in my directory hierarchy and there are some that have the extension `.JPG`. Give me the command to change the file extensions of those files from `.JPG` to `.jpeg`. The command you give should change all the files, even deep in a subdirectory. [Hint: I am thinking of `find(1)`]

6. [15 pt] Write a script in `ksh` that takes as argument a set of files. For each file, if the file is a plain file, it prints the message `Plain file`; if it is a directory, it prints the message `Directory`; if it is a symbolic link, it prints the message `Symbolic link`. If the file is none of those types, it just says `Other file type`.