

PRINT Name: _____ LAB Section:

Test Version: 657 One-Answer Multiple Choice 460 Questions – 25 of 25%

- ☞ Read **all** the words of these instructions and **both** sides (back and front) of all pages.
- ☞ Use your full, unabbreviated name on the mark-sense form. Do not abbreviate your name.
- ☞ Put the three-digit **Test Version** above into **NO. OF QUESTIONS** and **NO. OF STUDENTS**
- ☞ Fill in the bubbles with pencil only, no pen. Enter your NAME, Test Version, and answers.
- ☞ Manage your time. Answer questions you know, first. One Answer per question.
- ☞ The answer to the questions below about reading all these test instructions is: **Sim**

1. In an empty directory, how many arguments are passed to the **cat** command in this command line: **date >a1 ; touch a2 ba ca ; cat a***
 - a. 3
 - b. 2
 - c. none
 - d. 4
 - e. 1
2. Which of the command lines below can generate a non-empty file?
 - a. **ls -ls file >file**
 - b. **head -1 file >file**
 - c. **grep pattern file >file**
 - d. **touch file >file**
 - e. **sort -r file file >file**
3. How many arguments are passed to the command by the shell on this command line: **<bar bar -b "-a" '-r' >bar bar bar**
 - a. 6
 - b. 5
 - c. 4
 - d. 3
 - e. 7
4. Which of the following is true, given this long directory listing:


```
755 drwxr-x--x 512 ian user 256 May 30 12:35 dir
```

 - a. The number 512 is the count of links (names) this directory has.
 - b. The number 755 is the octal permissions of this directory.
 - c. The number 256 is the inode number of this directory.
 - d. The number 256 is the count of links (names) this directory has.
 - e. The number 512 is the size of this directory.
5. If I have a directory named **c/d**, which action would increase its *link count* by exactly one?
 - a. create a directory named **c/d/e**
 - b. create a file named **c/d/e**
 - c. create a file named **c/d2**
 - d. create a directory named **c/d2**
 - e. create a hard link to directory **d** named **d2**
6. If file **foo** occupies one disk block, how many disk blocks are in use after this sequence of commands:


```
cp foo bar ; ln bar one ; cp one two ; ln one pig
```

 - a. 5 blocks
 - b. 2 blocks
 - c. 4 blocks
 - d. 3 blocks
 - e. 1 block

7. If file **foo** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:


```
sort foo foo | tail -4 | head -1
```

 - a. 6
 - b. 4 4
 - c. 1 1
 - d. 6 6
 - e. 8
8. If you type the command **echo 'missing quote** which **CTRL** key will **interrupt** it and take you back to the command prompt?
 - a. **^I**
 - b. **^U**
 - c. **^R**
 - d. **^C**
 - e. **^D**
9. If you type the command **sleep 60 ,** which key sequence will interrupt it and take you back to the command prompt?
 - a. **[CTRL-U]**
 - b. **[CTRL-D]**
 - c. **[CTRL-L]**
 - d. **[CTRL-C]**
 - e. **[CTRL-R]**
10. In an empty directory, what is the output on your screen after this command line:


```
echo hi >a ; ls | wc -w
```

 - a. 1
 - b. 2
 - c. no output
 - d. 0
 - e. a
11. Which command line would show the inode number of a file?
 - a. **find -i file**
 - b. **ls -i file**
 - c. **ls -l file**
 - d. **cat -l file**
 - e. **cat -i file**
12. What command shows all the lines in file **foo** that contain the string **bar**?
 - a. **grep bar <foo**
 - b. **grep bar >foo**
 - c. **cat foo > grep bar**
 - d. **grep cat foo bar**
 - e. **grep foo bar**
13. In an empty directory, what is the output on your screen after this command line:


```
date >.foo >.bar ; ls *
```

 - a. **. .. .foo .bar**
 - b. *****
 - c. **.foo .bar**
 - d. an error message from **ls** saying ***** does not exist
 - e. no output
14. What is in the file **x** after this command line:


```
echo foo >a ; rm b ; echo bar >>b ; cp a b >x
```

 - a. **foo**
 - b. nothing (empty file)
 - c. **foo** followed by **bar**
 - d. **bar**
 - e. no such file (nonexistent)
15. If file **/a** contains 20 lines, and file **/b** contains 30 lines, then how many lines are in file **/c** after this command line:


```
sort /a /b >/c ; cat /a >>/b ; sort /c /b /a >/c
```

 - a. 80
 - b. 120
 - c. 70
 - d. 0
 - e. 50

16. In an empty directory, what is the output on your screen after this command line:
`ls 2>/dev/null nosuchfile`
- no output
 - `nosuchfile`
 - `ls: /dev/null: No such file or directory`
 - `ls: nosuchfile: No such file or directory`
 - `ls: 2>/dev/null nosuchfile: No such file or directory`
17. Which command below removes *only* this four-character file name containing a special character (and no others): `cat?`
- `rm cat/?`
 - `rm "cat?"`
 - `rm "'cat?'"`
 - `rm \cat?`
 - `rm ""cat?""`
18. What is the output on your screen of this command line:
`echo hi >out | wc -l`
- no output
 - 3
 - 2
 - 0
 - 1
19. When doing an `ls -a`, the output pathname that is a double dot (`..`) signifies what?
- A hidden file.
 - A pathname with double links.
 - The parent directory.
 - The current directory.
 - The root directory.
20. What is the output on your screen of this command line:
`umask 574 ; mkdir newdir ; ls -ld newdir`
- `d-w-----w- 1 me me 0 Oct 1 07:55 newdir`
 - `dr-xrwxr-- 1 me me 0 Oct 1 07:55 newdir`
 - `d-w-rwx-wx 1 me me 0 Oct 1 07:55 newdir`
 - `dr--rw-r-- 1 me me 0 Oct 1 07:55 newdir`
 - `d-w-----wx 1 me me 0 Oct 1 07:55 newdir`
21. What is the link count of directory `d` after this set of successful commands?
`mkdir d ; mkdir d/a ; mkdir d/b ; mkdir d/b/c`
- 1
 - 5
 - 2
 - 4
 - 3
22. What is the output of this command line in an empty directory:
`touch .12 .345 .6789 ; echo .??*`
- `... .12 .345 .6789`
 - `??*`
 - `.12 .345 .6789`
 - an error message from `echo` saying `??*` does not exist
 - no output
23. Which pathname almost always leads to the same file named: `/etc/passwd`?
- `./etc/passwd`
 - `/etc/./etc/./passwd`
 - `/etc/./etc/./passwd`
 - `/etc/passwd/.`
 - `../etc/passwd`

24. What is the link count of directory `d` after this set of successful commands?
`mkdir d ; touch f ; cd d ; ln ../f x`
- 2
 - 5
 - 3
 - 1
 - 4
25. In an empty directory, what is the output on your screen after this command line:
`touch a ; ls | wc -l`
- 1
 - 3
 - 0
 - no output
 - 2
26. If file `one` occupies one disk block, how many disk blocks are in use after this sequence of commands:
`cp one foo ; ln foo two ; ln two bar ; ln one cow`
- 5
 - 1
 - 2
 - 4
 - 3
27. How many words are in the file `x` after this command line:
`echo 1 2 >x ; echo 3 >x ; echo 4 >>x`
- 3
 - 4
 - 2
 - 1
 - 0
28. What does *quoting* mean on a shell command line?
- typing a "control" character using the [CTRL] key
 - using more than one pathname argument to a command, e.g. `rm a b c`
 - setting the PS1 variable to be your shell prompt
 - turning off the special meaning of shell meta-characters
 - using a leading tilde ("`~`") on a pathname to mean your HOME directory
29. What is the link count of file `foo` after this set of successful commands?
`rm foo ; touch foo ; ln foo bar ; cp bar x ; ln x y ; ln bar z`
- 1
 - 2
 - 3
 - 4
 - 5
30. What is the link count of directory `dir` after this set of successful commands?
`mkdir dir ; cd dir ; touch a b c ; mkdir d e`
- 7
 - 4
 - 5
 - 2
 - 3
31. If file `x` contains ten lines, and file `y` contains twenty lines, then how many lines are in file `cat` after this command line:
`sort x y >z ; tail -5 y >y ; sort x y z >cat`
- 40
 - 60
 - 50
 - 0
 - 45
32. Which command line lists all possible utilities available for sorting files?
- `grep sort /etc/passwd`
 - `man -k sort`
 - `man | grep sort`
 - `grep /etc/passwd sort`
 - `man sort`
33. What is the output of this command line if run in an empty directory:
`touch A a ; echo * ">*"`
- `A a >A a`
 - `* >*`
 - `A a >*`
 - `A a`
 - No output
34. Give the minimum number of directories in this pathname: `/a/b/c/d`
- 5
 - 2
 - 4
 - 3
 - 1

35. What is the output on your screen of this command line:
`echo cat >out ; echo dog | sort out`
- out
 - cat
 - dog followed by cat
 - cat followed by dog
 - dog
36. Given my directory `dir` and my file `dir/f` owned by me, which permissions allow me to access and change or create new content (data) in the file `dir/f` but not delete the file?
- Permissions `400` on directory `dir` and `400` on file `dir/f`.
 - Permissions `200` on directory `dir` and `200` on file `dir/f`.
 - Permissions `600` on directory `dir` and `700` on file `dir/f`.
 - Permissions `500` on directory `dir` and `100` on file `dir/f`.
 - Permissions `100` on directory `dir` and `200` on file `dir/f`.
37. Which command below removes *only* this four-character file name containing a special character (and no others): `*dog`
- `rm ?dog`
 - `rm .*/*dog`
 - `rm **dog`
 - `rm /*dog`
 - `rm ./*dog`
38. If my current working directory is `/home`, and my home directory is `/home/me`, which command copies the password file into my home directory under the name `foo`?
- `cp ../../etc/passwd /me/foo`
 - `cp ./me/../../etc/passwd ../home/me/foo`
 - `cp ../home/me/../../etc/passwd ./me/./foo`
 - `cp me/../../etc/passwd me/foo`
 - `cp ../etc/passwd ../me/foo`
39. If `/etc/shadow` is a file name, which pathname always leads to the same file?
- `/etc/../../shadow`
 - `/etc/shadow/..`
 - `../etc/shadow`
 - `/etc/shadow/../../`
 - `../../etc/./shadow`
40. How many arguments are passed to the command by the shell on this command line: `<bat bat -b "-a -r" >bat bat bat`
- 5
 - 4
 - 6
 - 3
 - 7
41. What does the term "kernel" (or "nucleus") mean?
- a method to get the system loaded into memory from disk/CD/tape/cards
 - that portion of the operating system that is always memory-resident
 - software to support more than one program loaded
 - software to support many users of the same machine
 - applications that are able to share the printer
42. How many arguments does the shell pass to this `echo` command:
`echo " one '2 three' 4 "five 6 ' 7 "8 ' >out`
- 6
 - 4
 - 2
 - 3
 - 5

43. If file `a` contains 2 lines, and file `b` contains 3 lines, then how many lines are output on your screen by this command line: `cat b | sort a`
- 5
 - 3
 - 2 followed by 3
 - 2
 - 3 followed by 2
44. Which command line displays all the non-hidden names in the current directory that contain the letter `a` (and no others)?
- `echo a*`
 - `echo *a*`
 - `echo *a`
 - `echo [a]`
 - `echo ?a?`
45. Given my directory `dir` and my file `dir/foo` owned by me, which permissions allow me to delete the file `dir/foo` from the directory, but not change the content (data) in the file?
- Permissions `500` on directory `dir` and `500` on file `dir/foo`.
 - Permissions `300` on directory `dir` and `500` on file `dir/foo`.
 - Permissions `600` on directory `dir` and `500` on file `dir/foo`.
 - Permissions `700` on directory `dir` and `200` on file `dir/foo`.
 - Permissions `600` on directory `dir` and `300` on file `dir/foo`.
46. In an empty directory, how many arguments are passed to the `rm` command in this command line: `touch a a1 a2 ba ca ; rm a*`
- 4
 - none
 - 2
 - 3
 - 1
47. What is in file `c` after this command line:
`echo B >b ; ln b a ; echo A >a ; ln a c ; rm a b`
- no such file (nonexistent)
 - `A` followed by `B`
 - nothing (empty file)
 - `B`
 - `A`
48. Which command line below does not show any lines from inside the file `out`?
- `tail out`
 - `locate out`
 - `head out`
 - `cat out`
 - `sort out`
49. Which of the following is true, given this long directory listing:
`drwxr-x--x 71 ian user 4096 May 30 12:35 dir`
- The number 4096 is the count of links (names) this directory has.
 - The number 71 is the size of this directory.
 - The number 71 is the inode number of this directory.
 - The number 71 is the count of links (names) this directory has.
 - The number 4096 is the inode number of this directory.
50. Which of the following will *not* cause `file1` to become an empty file?
- `tail file1 > file1`
 - `cat file1 > file1`
 - `sort file1 > file1`
 - `wc file1 > file1`
 - `head file1 > file1`
51. Which pathname almost always leads to the same file named: `/etc/passwd`
- `/etc/etc/./passwd`
 - `/etc/./passwd`
 - `/etc/passwd/.`
 - `../etc/./passwd`
 - `./etc/passwd`

52. Which command pipeline outputs the count of the number of pathnames (including all subdirectories) that lie under the current directory?
- a. `ls / | wc` b. `dir / | wc` c. `find . | wc`
d. `ls . | wc` e. `file . | wc`
53. If I am in my home directory named `/home/me` and `mt` is an empty sub-directory, what is true after this command line:
- ```
touch ./foo ; mv ./mt/./foo ../me/bar
```
- a. there is a second copy of the file named `foo` in the file named `bar`  
b. the command fails because path `./mt/./foo` does not exist  
c. the command fails because path `../me/bar` does not exist  
d. the directory `mt` now contains only a file named `bar`  
e. the directory `mt/..` now has a file named `bar` in it
54. What would you type to change the permissions on a file to `r-----rw-?`
- a. `chmod 322 file`                      b. `chmod 102 file`  
c. `chmod 406 file`                      d. `chmod 654 file`  
e. `chmod 122 file`
55. What is true about this output from `ls -ild foo bar?`
- ```
816 -rwxr-xr-x 2 root root 3 Jan 24 01:03 foo
816 drwxr-xr-x 2 root root 3 Jan 24 01:03 bar
```
- a. `foo` and `bar` are two of three names for this file
b. `foo` and `bar` are names for the same file
c. this output is not possible
d. `foo` and `bar` are names for different files
e. `foo` and `bar` each have three names (six names total)
56. What is the link count of file `foo` after this set of successful commands?
- ```
rm foo ; touch foo ; ln foo bar
cp bar x ; ln x y ; ln bar z ; ln z a
```
- a. 1                      b. 3                      c. 4                      d. 5                      e. 2
57. What is the output of this command line in an empty directory: `echo *`
- a. `.`  
b. `*`  
c. an error message from `echo` saying `*` does not exist  
d. `. ..`  
e. no output on screen
58. In an empty directory, how many words are in file `out` after this command line:
- ```
touch 1 2 3 2 1 ; ls >out
```
- a. 5 b. 0 c. 3 d. 4 e. 6
59. Which of the following VI/VIM key sequences will move the entire line on which the cursor resides to after the line that follows it (i.e. it would move line 5 to be line 6 and line 6 would become line 5)?
- a. `:dp` b. `DDp` c. `DDP` d. `ddp` e. `ddP`

60. Which command line lists all possible utilities available for compiling programs?
- a. `grep 'compile' /etc/` b. `man compile`
c. `locate compile` d. `find compile`
e. `man -k compile`
61. In an empty directory, how many words are in file `out` after this command line:
- ```
echo hi >a ; ls >out
```
- a. 2                      b. 0                      c. 3                      d. 4                      e. 1
62. If I am in directory `/home/me` and `mt` is an empty sub-directory, what is true after this command line: `touch foo ; mkdir bar ; mv foo bar/mt`
- a. the directory `mt` now contains a file named `foo`  
b. the directory `mt` is still empty  
c. the directory `bar` now contains a file named `foo`  
d. the directory `mt` now contains a directory named `bar`  
e. the command fails because `bar/mt` is not a directory
63. If file `a` contains 2 lines, and file `b` contains 3 lines, then how many lines are in file `c` after this command line:
- ```
cat a a >c ; head b >>a ; cat c b >c a
```
- a. 10 b. 12 c. 8 d. 7 e. 0
64. In a directory that contains only the file `single`, what happens after this command: `mv single double`
- a. an empty file named `double` is created
b. the command fails because the name `double` does not exist
c. there is a second copy of the file `single` in the file named `double`
d. the command fails because `single` is not a directory
e. there is only the file named `double` in the directory now
65. In a directory containing one file named `dog`, what is the output on your screen after this command line: `1>/dev/null ls *`
- a. `dog`
b. `bash: 1>/dev/null: command not found`
c. no output
d. `*`
e. `ls: *: No such file or directory`
66. How many arguments does the shell pass to this `echo` command:
- ```
echo " 1 2 " three ' 4 ' five"6"
```
- a. 9                      b. 5                      c. 1                      d. 3                      e. 4
67. In a directory that contains only the file `foo`, what happens after this command:
- ```
mv foo bar
```
- a. the command fails because `bar` is not a directory
b. the command fails because the name `bar` does not exist
c. there is a copy of the file named `foo` in the file named `bar`
d. there is only the file named `bar` in the directory now
e. an empty file named `bar` is created

68. If file **/a** contains 30 lines, and file **/b** contains 50 lines, then how many lines are in file **/c** after this command line:
`cat /a /b >/c ; sort /c >/c ; sort /c /a /b >/c`
 a. 80 b. 30 c. 50 d. 0 e. 160
69. Which of these statements is true?
 a. If you give me write permission on a file owned by you, I can rename it.
 b. To erase an entire line of typing, type [CONTROL]-[E].
 c. To make a hard link to file "**foo**" named "**bar**", file "**foo**" must exist.
 d. The "**ln**" command takes two arguments, so the maximum number of hard links a file can have is two.
 e. You can make a hard link to a directory.
70. If file **a** contains 20 lines, and file **b** contains 30 lines, then how many lines are in file **out** after this command line:
`cat a b >c ; head c >c ; sort a b c >out`
 a. 30 b. 60 c. 100 d. 0 e. 50
71. What will appear on your screen if you execute this sequence of commands in your home directory:
`ln /etc/passwd foo ; ln foo bar`
`echo hi >bar ; cat bar`
 a. an error message and then **hi**
 b. the contents of the password file followed by **hi**
 c. an error message and then the contents of the password file
 d. **hi**
 e. **bar**
72. Which of the following is true, given this long directory listing:
`drwxr-x--x 71 ian user 512 May 30 12:35 dir`
 a. The number 512 is the count of links (names) this directory has.
 b. The number 71 is the inode number of this directory.
 c. The number 512 is the inode number of this directory.
 d. The number 71 is the size of this directory.
 e. The number 71 is the count of links (names) this directory has.
73. What is the output on your screen of this command line:
`umask 674 ; touch newfile ; ls -l newfile`
 a. `--w--wxr-x 1 me me 0 Feb 20 07:55 newfile`
 b. `-----w- 1 me me 0 Feb 20 07:55 newfile`
 c. `-rw-rwxr-- 1 me me 0 Feb 20 07:55 newfile`
 d. `---x----wx 1 me me 0 Feb 20 07:55 newfile`
 e. `-rw-rw-r-- 1 me me 0 Feb 20 07:55 newfile`

74. If I am in my home directory named **/home/me** and **dir** is an empty sub-directory, what is true after this command line:
`touch ./foo ; mv dir/./foo ../me/cat`
 a. there is a second copy of the file named **foo** in the file named **cat**
 b. the command fails because the path **../me/cat** does not exist
 c. the directory **dir/..** now has a file named **cat** in it
 d. the directory **dir** now contains only a file named **cat**
 e. the command fails because the path **dir/./foo** does not exist
75. In an empty directory, how many arguments are passed to the **cat** command in this command line: `touch a1 a2 ba ca ; cat a*`
 a. 3 b. 1 c. none d. 4 e. 2
76. What is the output on your screen after this command line:
`echo hi >a ; ls a > wc`
 a. 1 1 3 b. 1 1 2 c. no output
 d. 2 e. 3
77. What is the output on your screen after these command lines:
`echo 1 >a ; ln a b ; echo 2 >b`
`chmod 266 b ; cat a`
 a. no output on screen b. 2
 c. an error message d. 1 followed by 2
 e. 1
78. What is the output on your screen after this command line:
`mkdir dir ; touch dir/.aa dir/.bb ; echo dir/*`
 a. **dir/***
 b. no output
 c. **dir/. dir/.. dir/.aa dir/.bb**
 d. **dir/.aa dir/.bb**
 e. **dir/**
79. What is the output on your screen after these command lines:
`echo one >x ; cp x y ; echo two >>y`
`sort x >y ; cat y`
 a. **one** followed by **two** b. **two** followed by **one**
 c. no output d. **two**
 e. **one**
80. Which of the following is true, given this long directory listing:
`drwxr-x--x 456 ian user 123 May 30 12:35 dir`
 a. The number 456 is the size of this directory.
 b. The number 123 is the size in bytes of this directory.
 c. The number 123 is the count of links (names) this directory has.
 d. The number 456 is the inode number of this directory.
 e. The number 456 is the octal permissions of this directory.

81. How many arguments are passed to the command by the shell on this command line: `<foo foo -x " " -z -r" " >foo 'foo foo'`
- a. 9 b. 6 c. 5 d. 7 e. 8
82. What can you do to get back (redo) the last command you typed to the `bash` (Linux) shell?
- a. Type `[CONTROL]-[BACKSPACE]`
 b. Type `[ALT]-[F2]`
 c. Use the "UpArrow" key.
 d. Type `[CONTROL]-[C]`
 e. Use the "BackSpace" key.
83. If directory `/a` contains these seven two-character file names: `aa`, `ab`, `ac`, `ad`, `a*`, `a?`, `??`, then which command below will remove only the single two-character name `a?` from the directory (and no others)?
- a. `rm "/a?"` b. `rm /a\?` c. `rm /a/a?`
 d. `rm '/a/a?'` e. `rm /a/?\?`
84. What is the output of this command line in an empty directory: `cat *`
- a. an error message from `cat` saying `*` does not exist
 b. `. ..`
 c. no output on screen
 d. `*`
 e. `.`
85. If I have a directory owned by me named `/a/b/c/7`, which action would increase its *link count* by exactly one?
- a. create a directory named `/a/b/c/d/e`
 b. create one file named `/a/b/c/7de`
 c. create a directory named `/a/b/c/7/d2`
 d. create a directory named `/a/b/c/7e`
 e. create one file named `/a/b/c/7/d2`
86. What is true about this output from `ls -il foo bar`
- ```
72 -rwxrwxrwx 2 bin bin 3 Oct 30 09:23 foo
72 -r--r--r-- 2 bin bin 3 Oct 30 09:23 bar
```
- a. this output is not possible  
 b. `foo` and `bar` each have two names (four names total)  
 c. `foo` and `bar` are names for different files  
 d. `foo` and `bar` are names for the same file  
 e. `foo` and `bar` are two of three names for this file
87. What is in file `foo` after this command line: `echo 1 2 >foo 3`
- a. `1 2 3`                    b. `1 2`  
 c. `3`                    d. nothing (empty file)  
 e. `echo 1 2`

88. What is the correct syntax to redirect both standard output and standard error into the same output file?
- a. `sum foo 2>&1 >out`                    b. `sum foo 2>1 >out`  
 c. `sum foo >out 2>&1`                    d. `sum foo 1>out 2>1`  
 e. `sum foo 1>out 2>out`
89. If I am in directory `/home/me` and `mt` is an empty sub-directory, what is true after this command line:
- ```
touch ./foo bar ; rm mt/./foo ../me/bar
```
- a. the command fails because the path `mt/./foo` does not exist
 b. the directory `me` now contains a file named `bar`
 c. the directory `mt` now contains a file named `foo`
 d. the directory `mt` is still empty
 e. the command fails because the path `../me/bar` does not exist
90. Given an existing file of yours named `cat`, what is the output on your screen of this command line: `echo xx >cat ; head cat >cat ; wc cat`
- a. `1 1 3 cat` b. no output c. `1 1 2 cat`
 d. `2 2 4 cat` e. `0 0 0 cat`
91. If `foo` is a sub-directory that contains only the file `bar`, what happens after this command: `mv ./foo/bar foo/./me`
- a. the directory `foo` is now empty
 b. the command fails because the name `./foo/bar` does not exist
 c. there is a second copy of the file `bar` in the file named `me`
 d. the directory `foo` now contains only a file named `me`
 e. the command fails because the name `me` does not exist
92. If file `foo` occupies one disk block, how many disk blocks are in use after this sequence of commands:
- ```
cp foo bar ; ln bar one ; cp one two ; ln one ten
```
- a. 2 blocks                    b. 5 blocks                    c. 3 blocks  
 d. 1 block                    e. 4 blocks
93. If file `ten` contains ten lines, and file `twenty` contains twenty lines, then how many lines are output on your screen by this command line:
- ```
cat twenty | sort ten
```
- a. 60 b. 20 c. 0 d. 30 e. 10
94. If `pig` is a sub-directory that contains only the file `dog`, what happens after this command: `mv pig/dog pig/././cat`
- a. the directory `pig` now contains only a file named `cat`
 b. the command fails because the name `cat` does not exist
 c. the command fails because the name `pig/././cat` does not exist
 d. the directory `pig` is now empty
 e. there is a second copy of the file `dog` in the file named `cat`

95. What is the link count of directory **d** after this set of successful commands?
`mkdir d ; mkdir d/a ; touch d/b`
 a. 5 b. 1 c. 2 d. 4 e. 3
96. What is the link count of directory **dir** after this set of successful commands?
`mkdir dir ; touch foo ; cd dir ; ln ../foo bar`
 a. 5 b. 2 c. 4 d. 3 e. 1
97. To make the **bash** shell to complete commands or file names, you type the first part of the command or file name and then press this key:
 a. [CTRL]-[C] b. [ALT] c. [CTRL]-[D]
 d. [ALT]-[F1] e. [TAB]
98. How many arguments are passed to the command by the shell on this command line: `<wc wc " 1 '2 3' 4 " 5 6 ' 7 " 8 " ' >wc 9`
 a. 3 b. 4 c. 6 d. 2 e. 5
99. What would you type to find the string **tony** in the file `/etc/passwd`?
 a. `file tony /etc/passwd` b. `file /etc/passwd tony`
 c. `grep /etc/passwd tony` d. `grep tony /etc/passwd`
 e. `find tony /etc/passwd`
100. Which command line below does not show any lines from inside the file **dog**?
 a. `tail dog` b. `ls dog` c. `more dog`
 d. `less dog` e. `head dog`
101. Which command below removes *only* this four-character file name containing a special character (and no others): `*xyz`
 a. `rm '*xyz'` b. `rm *xyz` c. `rm '*xyz'`
 d. `rm '*xyz` e. `rm *'xyz'`
102. What is the result of this exact command line: `echo /foo bar`
 a. the contents of the files `/foo` and `bar` will be displayed
 b. the two text strings `/foo` and `bar` will be displayed
 c. the names of the pathnames `/foo` and `bar` will be displayed
 d. file `/foo` will be copied to `bar`
 e. all the files under directory `/foo` with the name `bar` will be displayed
103. If my current directory is `/etc`, which of these pathnames is equivalent to the file name `/etc/passwd`?
 a. `/passwd` b. `passwd`
 c. `../passwd` d. `../etc/passwd/.`
 e. `./etc/passwd`
104. In an empty directory, how many words are in file **cow** after this command line:
`touch dog dog cat ; ls >cow`
 a. 3 b. 2 c. 0 d. 4 e. 1

105. In an empty directory, what is the output on your screen after this command line:
`ls 1>/dev/null nosuchfile`
 a. no output
 b. `ls: 1>/dev/null nosuchfile: No such file or directory`
 c. `nosuchfile`
 d. `ls: nosuchfile: No such file or directory`
 e. `ls: /dev/null: No such file or directory`
106. How can you ask the **bash** (Linux) shell to complete commands or file names for you?
 a. Type the first part of the command or file name and press the [ALT] key.
 b. Type the first part of the command or file name and press the [CTRL]-[C] key.
 c. Type the first part of the command or file name and press the [TAB] key.
 d. Type the first part of the command or file name and press the [ALT]-[F1] key.
 e. Type the first part of the command or file name and press the [CTRL]-[D] key.
107. How many arguments does the shell pass to this **echo** command:
`echo 'It's a bird! It's a plane!'`
 a. 2 b. 3 c. 5 d. 1 e. 4
108. If directory **dir** contains these four three-character file names: `.aa`, `.ab`, `.a?`, `.a*`, then what is the output on your screen of this command line:
`echo dir/???`
 a. no output
 b. `dir/.aa dir/.ab dir/.a? dir/.a*`
 c. `dir/???`
 d. `dir/.a?`
 e. `dir/.aa dir/.ab`
109. The option to **ls** that shows which names are directories is:
 a. `-l` b. `-i` c. `-d` d. `-1` e. `-a`
110. Given this successful command line (note the dot argument):
`cd /tmp ; mkdir dir ; cd dir ; chmod u-x .`
 Which of the following subsequent commands will execute without any "permission denied" errors?
 a. `ls /tmp/dir/..` b. `ls .`
 c. `ls /tmp/dir` d. `ls /tmp/dir/.`
 e. `ls ..`
111. How many arguments are passed to the command by the shell on this command line: `<bar bar -b"-a '-r' >bar" bar >out`
 a. 4 b. 6 c. 2 d. 5 e. 3

112. What command shows all the lines in file **foo** that contain the string **bar**?
- `grep bar <foo`
 - `cat foo > grep bar`
 - `foo | grep bar`
 - `cat foo | wc bar`
 - `grep foo bar`
113. What is the output of this command line in an empty directory:
- ```
touch .a .b .c ; echo .??*
```
- `.a .b .c`
  - an error message from **echo** saying `.??*` does not exist
  - no output
  - `... .a .b .c`
  - `.??*`
114. If directory `/a` contains these seven two-character file names: **aa**, **ab**, **ac**, **ad**, **a?**, **a\***, **a.**, then which command below will remove only the single two-character name **a?** from the directory (and no others)?
- `rm /a/a\?`
  - `rm /a/a*`
  - `rm /a/a?`
  - `rm /a/a[*]`
  - `rm /a?`
115. What is the output of this command line in an empty directory:
- ```
touch 1 2 3 .a .ab .abc ; echo [.]*
```
- `.a .ab .abc`
 - an error message from **echo** saying `[.]*` does not exist
 - `... .a .ab .abc`
 - no output
 - `[.]*`
116. Which of these statements is true?
- Unix commands must be entered in lower-case letters.
 - To erase an entire line of typing, type `[CONTROL]-[E]`.
 - To delete a word from the shell command line, type `[CONTROL]-[D]`.
 - To indicate End-of-File (no more input), type `[CONTROL]-[E]`.
 - Unix commands can be entered in upper-case or lower-case letters; they are equivalent.
117. If I am in my home directory named `/home/me` and `mt` is an empty sub-directory, what is true after this command line:
- ```
touch ./foo ; mv ./mt/./foo ../me/bar
```
- the directory `mt/..` now has a file named **bar** in it
  - the directory `mt` now contains only a file named **bar**
  - there is a second copy of the file **foo** in the file named **bar**
  - the command fails because path `../me/bar` does not exist
  - the command fails because path `./mt/./foo` does not exist

118. What is the output of this command line in an empty directory: `ls *`
- an error message from **ls** saying `*` does not exist
  - `.`
  - `..`
  - no output on screen
  - `*`
119. If you type the command `cat ,` which key sequence will send an EOF and take you back to the command prompt?
- `[CTRL-U]`
  - `[CTRL-D]`
  - `[CTRL-C]`
  - `[CTRL-R]`
  - `[CTRL-L]`
120. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv foo/me foo/bar`
- the command fails because **bar** is not a directory
  - there is only the file named **me** in the directory now
  - there is a second copy of the file **bar** in the file named **me**
  - an empty file named **me** is created
  - the command fails because the name **me** does not exist
121. If my current directory is `/lib`, which of these pathnames is equivalent to the pathname `/lib/x/y`?
- `../x/y`
  - `/x/y`
  - `../lib/x/y`
  - `./lib/x/y`
  - `./lib/y`
122. In an empty directory, what is the output on your screen after this command line:
- ```
touch a b .1 .2 ; echo .??*
```
- `... .1 .2`
 - `a b`
 - an error message from **echo** saying `.??*` does not exist
 - `.. a b .1 .2`
 - `.??*`
123. Which command counts the number of Unix permission groups you are in?
- `wc groups`
 - `id | wc`
 - `echo groups | wc`
 - `groups | wc`
 - `umask | wc`
124. Which command line below outputs only lines 6-10 of the file named **foo**?
- `head -5 foo | tail -10`
 - `tail -15 foo | head -5`
 - `tail -10 foo | head -6`
 - `head -10 foo | tail -5`
 - `head -10 foo | tail -6`
125. In the output of `ls -a`, the two-character name `..` signifies what?
- The current directory.
 - A hidden file.
 - The root directory.
 - The parent directory.
 - A file or directory with double links.

126. What is true about this output from `ls -il foo bar`
- ```
15 -r-x-----x 2 bin bin 3 Oct 30 09:23 foo
15 -r-x-----x 2 bin bin 3 Oct 30 09:23 bar
```
- this output is not possible
  - `foo` and `bar` are names for different files
  - `foo` and `bar` each have three names (six names total)
  - `foo` and `bar` are two of three names for this file
  - `foo` and `bar` are names for the same file
127. Which command line below never shows any lines from inside the file `cow`?
- `tail cow`
  - `head cow`
  - `grep pattern cow`
  - `sort cow`
  - `wc cow`
128. What can you do to get back (redo) the last command you typed to the `bash` (Linux) shell?
- Type `[CONTROL]-[BACKSPACE]`
  - Use the "PageUp" key.
  - Type `[CONTROL]-[PREVIOUS]`
  - Use the "UpArrow" key.
  - Type `[ALT]-[F2]`
129. If my current directory is `/etc`, which of these pathnames is equivalent to the pathname `/etc/x/y`?
- `../x/y`
  - `/x/y`
  - `../etc/x/y`
  - `./etc/x/y`
  - `../etc/y`
130. If I have a directory owned by me named `me/dir`, which action would increase its *link count* by exactly one?
- create one file named `me/dir2`
  - create a directory named `me/dir2`
  - create a directory named `me/dir/.`
  - create one file named `me/dir/bar`
  - create a directory named `me/dir/foo`
131. In an empty directory, what is the output on your screen of this command line:
- ```
echo hi >foo >bar ; cat foo
```
- `cat: foo: No such file or directory`
 - `hi`
 - no output
 - `hi >foo`
 - `hi >foo >bar`
132. How many lines are in file `out` after this command line:
- ```
date >wc >cat >out
```
- 2
  - 1 6 29
  - 1
  - 0 0 0
  - 0

133. What would you see if you typed this command: `cat /users`
- The contents of the file `users` located in your home directory
  - The contents of your subdirectory named `users`
  - The contents of the file `users` located in the root directory
  - The contents of your directory named `users`
  - The contents of the file `users` located in the parent directory
134. What is the output on your screen after these command lines:
- ```
echo 1 >x ; ln x y ; echo 2 >>y
head -1 x >y ; cat y
```
- 1 followed by 2
 - 1
 - no output
 - 2 followed by 1
 - 2
135. If file `a` contains 2 lines, and file `b` contains 3 lines, then how many lines are in file `c` after this command line: `ln a d ; ln d e ; ln b f >c`
- 5
 - 3
 - 0
 - 2
 - 4
136. If `foo` is a sub-directory that contains only the file `bar`, what happens after this command: `mv foo/./bar foo/./me`
- the directory `foo` is now empty
 - the command fails because the name `me` does not exist
 - the directory `foo` now contains only a file named `me`
 - the command fails because the name `foo/./bar` does not exist
 - there is a second copy of the file `bar` in the file named `me`
137. What is the output on your screen after these command lines:
- ```
echo 1 >x ; cp x y ; echo 2 >>y
sort x >y ; cat y
```
- 2
  - no output
  - 2 followed by 1
  - 1 followed by 2
  - 1
138. What is the output of this command line in an empty directory:
- ```
touch .1 .2 .3 4 5 6 ; echo .*
```
- `.1 .2 .3 4 5 6`
 - `.*`
 - `... .1 .2 .3`
 - an error message from `echo` saying `.*` does not exist
 - `4 5 6`
139. If I am in my home directory named `/home/ian` and `mt` is an empty sub-directory, what is true after this command line:
- ```
touch ../ian/cat ; cp ./mt/./cat ./mt/./dog
```
- the file named `cat` is now renamed to `dog`
  - the directory `mt` now has a file named `dog` in it
  - the directory `mt` is still empty
  - the directory `mt` now contains two files
  - the command fails because the path `./mt/./cat` does not exist

140. If file **foo** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:  
`cat foo foo | sort | uniq | tail -4 | head -1`  
 a. 6 6      b. 4      c. 5      d. 6      e. 1
141. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `cp foo/bar ./foo/./me`  
 a. there is a second copy of the file **bar** in directory **foo**  
 b. the directory **foo** is now empty  
 c. the command fails because the name **foo/bar** does not exist  
 d. there is a second copy of the file **bar** in the file named **me**  
 e. the directory **foo** now contains only a file named **me**
142. Which of these commands always returns you to your account HOME directory?  
 a. `cd /home`      b. `cd ..`      c. `cd home`  
 d. `cd`      e. `cd /home/..`
143. Which of the following is true, given this long directory listing:  
`drwxr-x--x 256 ian user 512 May 30 12:35 dir`  
 a. The number 512 is the size of this directory.  
 b. The number 256 is the size of this directory.  
 c. The number 256 is the inode number of this directory.  
 d. The number 256 is the octal permissions of this directory.  
 e. The number 512 is the count of links (names) this directory has.
144. Which command below removes only this file name containing a special character:  
`?xyz`  
 a. `rm ''?xyz`      b. `rm ''?xyz''`      c. `rm '?xyz'`  
 d. `rm '?xyz'`      e. `rm ?xyz`
145. The command that creates a directory and all parent directories is:  
 a. `mkdir -r x/y/z`      b. `rm -r x/y/z`  
 c. `rmdir -r x/y/z`      d. `touch x/y/z`  
 e. `mkdir -p x/y/z`
146. What is true about this command line: `date >ls ; ls -ls ls >wc`  
 a. The file **wc** has one line in it.  
 b. The shell finds and executes three different commands.  
 c. The **ls** command is executed more than once.  
 d. The **wc** command counts the output of the **ls** command.  
 e. The **ls** command receives the output of **date** on standard input.
147. The option to **ls** that shows inode (index) numbers is:  
 a. `-l`      b. `-l`      c. `-i`      d. `-a`      e. `-x`
148. What is the output on your screen after this command line:  
`echo hi | wc >wc -wc`  
 a. **hi**      b. no output      c. **1 3**  
 d. **0 0**      e. **1 2**

149. Which of the following is true, given this long directory listing:  
`drwxr-x--x 512 ian user 712 May 30 12:35 dir`  
 a. The number 712 is the inode number of this directory.  
 b. The number 512 is the inode number of this directory.  
 c. The number 712 is the count of links (names) this directory has.  
 d. The number 512 is the size of this directory.  
 e. The number 512 is the count of links (names) this directory has.
150. If my current working directory is **/home**, and my home directory is **/home/ian**, which command copies file **/bin/ls** into my home directory under the name **me**?  
 a. `cp ian/../../../../bin/ls ./ian/me`  
 b. `cp ../ian/./bin/ls ../home/ian/me`  
 c. `cp ../home/./ian/./bin/ls ./ian/./me`  
 d. `cp ../../bin/ls ../ian/me`  
 e. `cp ../../bin/./ls /ian/me`
151. If file **/a** contains 3 lines, and file **/b** contains 5 lines, then how many lines are output on your screen by this command line: `cat /a | sort /b`  
 a. 8      b. 3      c. 5      d. 0      e. 2
152. If file **foo** occupies two disk blocks, how many disk blocks are in use after this sequence of commands:  
`cp foo bar ; ln bar one ; cp one two ; ln one ten`  
 a. 8 blocks      b. 10 blocks      c. 4 blocks  
 d. 6 blocks      e. 2 blocks
153. What is the output of this command line in an empty directory:  
`touch a .a bc .bc def ; echo [ab]*`  
 a. **a .a bc .bc**  
 b. **[ab]\***  
 c. **a bc**  
 d. no output  
 e. an error message from **echo** saying **[ab]\*** does not exist
154. In the output of `ls -a`, the two-character name **..** signifies what?  
 a. The parent directory.  
 b. It begins every name that is hidden.  
 c. The ROOT directory.  
 d. The current directory.  
 e. A file or directory with double links.
155. What is the link count of file **foo** after this set of successful commands?  
`rm foo ; touch foo ; ln foo bar`  
`cp bar x ; ln x y ; ln y z`  
 a. 3      b. 1      c. 0      d. 4      e. 2

156. The output of the **tree** command is:
- the tree of files under your HOME directory
  - an recursive list of directories and their contents
  - the tree of files under the ROOT directory
  - a recursive list of users logged in to the system
  - the tree of users logged in to the system
157. Which command below removes *only* this four-character file name containing a special character (and no others): **?abc**
- rm -r ?abc**
  - rm "?abc"**
  - rm ""?abc""**
  - rm ''?abc''**
  - rm /?abc**
158. If file **nine** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:
- ```
sort nine nine | tail -3 | head -1
```
- 8
 - 9
 - 1
 - 2 2
 - 8 8
159. What is in the file **cow** after this command line:
- ```
echo a >b ; echo b >a ; mv b a >cow
```
- a** followed by **b**
  - no such file (nonexistent)
  - nothing (empty file)
  - b**
  - a**
160. What is the link count of file **f** after this set of successful commands?
- ```
rm f ; touch f ; cp f x
ln f a ; ln x y ; ln a z ; ln x b
```
- 3
 - 4
 - 2
 - 6
 - 5
161. What is the link count of directory **dir** after this set of successful commands?
- ```
mkdir dir ; mkdir dir/foo ; touch dir/bar
```
- 4
  - 3
  - 2
  - 5
  - 1
162. If I am in my home directory named **/home/me** and **mt** is an empty sub-directory, what is true after this command line:
- ```
touch ../me/foo ; cp ../mt/./foo ../mt/./bar
```
- the directory **mt** now has a file named **bar** in it
 - the command fails because the path **../mt/./foo** does not exist
 - there is a second copy of the file named **foo** in the file named **bar**
 - the directory **mt** now contains two files
 - the directory **mt** is still empty
163. If file **/a** contains 3 lines, and file **/b** contains 5 lines, then how many lines are in file **/c** after this command line:
- ```
cat /a /b >/c ; sort /c >/c ; sort /c /a /b >/c
```
- 0
  - 8
  - 16
  - 5
  - 3
164. What is the output on your screen after this command line:
- ```
echo hi >a ; cp a b | wc -c
```
- 3
 - 1
 - 0
 - 2
 - no output

165. What minimal permissions must you have on a directory to be able to execute successfully the command **ls .** from *inside* the directory?
- x**
 - rw-**
 - r--**
 - r-x**
 - wx**
166. In a directory containing one file named **mt**, what is the output on your screen after this command line: **ls 2>/dev/null nosuchfile**
- no output
 - ls: nosuchfile: No such file or directory**
 - bash: 2>/dev/null: command not found**
 - nosuchfile**
 - mt**
167. What is the link count of directory **d** after this set of successful commands?
- ```
mkdir d ; cd d ; touch f ; ln f x ; ln f y
```
- 4
  - 3
  - 2
  - 5
  - 1
168. What happens when you try to change to the parent directory of **ROOT**, e.g.
- ```
cd / ; cd ..
```
- you go to the parent directory containing your **C:** drive
 - the shell current directory is still **ROOT**
 - the shell asks you to retype the invalid directory
 - the shell issues a warning, but changes to the parent
 - the shell issues an error message and does not change
169. In an empty directory, how many lines are in file **foo** after this command line:
- ```
ls nosuchfile . .. 2>foo
```
- 4
  - 1
  - 0
  - 2
  - 3
170. How many lines are in file **out** after this command line:
- ```
echo hi >dog >out >cat
```
- 1
 - 0
 - 4
 - 3
 - 2
171. In an empty directory, how many arguments are passed to the **wc** command in this command line: **date >o1 ; touch a1 b2 out >o1 ; wc o***
- 4
 - 2
 - 1
 - 5
 - 3
172. Which command removes adjacent duplicate lines from a file?
- dup**
 - unique**
 - duplicate**
 - uni**
 - uniq**
173. Which command pipeline outputs the count of the number of manual page titles that contain the keyword "sort"?
- man -k sort | wc**
 - wc man sort**
 - wc -k sort**
 - man sort | wc**
 - man sort ; wc**
174. What is the output of this successful command sequence?
- ```
cd /tmp ; touch dir ; mkdir bar ; pwd
```
- /bar**
  - /tmp/dir/bar**
  - /tmp**
  - /tmp/dir**
  - /tmp/bar**

175. What is the link count of file **f** after this set of successful commands?  
`rm f ; touch f ; cp f x`  
`ln f a ; ln x y ; ln a z ; ln z q`  
 a. 2            b. 6            c. 4            d. 3            e. 5
176. If directory **dir** contains only these five two-character file names: **a?**, **11**, **?1**, **1\***, **.1**, then which command below will remove *only* the single two-character name **?1** from the directory?  
 a. `rm dir/\??`            b. `rm dir/?1`            c. `rm dir/??`  
 d. `rm dir/*1`            e. `rm dir/1*`
177. What is in the file named **file** after this command line:  
`echo a >c ; echo b >>c ; mv c d >file`  
 a. no such file (nonexistent file)            b. **b**  
 c. **a** followed by **b**            d. nothing (empty file)  
 e. **a**
178. What would you see if you typed this command: `cat /foo`  
 a. The contents of the file **foo** located in the root directory  
 b. The contents of your subdirectory named **foo**  
 c. The contents of your directory named **foo**  
 d. The contents of the file **foo** located in the parent directory  
 e. The contents of the file **foo** located in your home directory
179. How many arguments does the shell pass to this `echo` command:  
`echo 'It's "1 2" isn't it? I can't decide.'`  
 a. 5            b. 3            c. 6            d. 2            e. 4
180. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv foo/bar foo/moo`  
 a. there is only the file named **moo** in the directory now  
 b. the command fails because the name **moo** does not exist  
 c. the command fails because **bar** is not a directory  
 d. there is a second copy of the file named **bar** in the file named **moo**  
 e. an empty file named **moo** is created
181. What is in file **c** after this command line:  
`echo A >a ; ln a b ; echo B >b ; ln a c ; rm a b`  
 a. no such file (nonexistent)            b. **A**  
 c. **A** followed by **B**            d. **B**  
 e. nothing (empty file)
182. Which pathname almost always leads to the same file named: `/bin/ls`  
 a. `./bin./ls`            b. `/bin./bin../ls`  
 c. `/bin../ls`            d. `./bin../ls/.`  
 e. `./bin/ls`

183. What is the output on your screen of this command line:  
`umask 457 ; mkdir newdir ; ls -ld newdir`  
 a. `d-wx-w---- 2 me me 512 Oct 1 1:12 newdir`  
 b. `d-wx-w-rwx 2 me me 512 Oct 1 1:12 newdir`  
 c. `dr-xr-xrwx 2 me me 512 Oct 1 1:12 newdir`  
 d. `d-w--w---- 2 me me 512 Oct 1 1:12 newdir`  
 e. `dr--r-xrwx 2 me me 512 Oct 1 1:12 newdir`
184. Which of the following command lines removes all the names in the current directory that are exactly three letters (alphabetic) long (and nothing else)?  
 a. `rm [a-zA-Z,a-zA-Z,a-zA-Z]`  
 b. `rm [a-zA-Z][a-zA-Z][a-zA-Z]`  
 c. `rm ???`  
 d. `rm [azAZ][azAZ][azAZ]`  
 e. `rm [3][3][3]`
185. Which command below sorts *only* this five-character file name containing a special character (and no others): `xx?xx`  
 a. `sort "xx?xx"`            b. `sort xx/?xx`  
 c. `sort 'xx?xx'`            d. `sort xx?xx`  
 e. `sort "xx?xx"`
186. To shut down your Fedora system in an orderly fashion:  
 a. select VMWare "VM|Power Off this virtual machine"  
 b. select "System|Shut down"  
 c. type the three key `[CONTROL]-[ALT]-[DEL]`  
 d. logout from each terminal and the machine will shut down  
 e. type the three key `[CONTROL]-[ALT]-[F1]`
187. Which of these statements is true?  
 a. you can only remove a file name if the file is writable by you  
 b. you can only make links to files owned by you  
 c. you can only rename a file if you are the owner of the file  
 d. you can only remove a file name if the file is owned by you  
 e. you may be able to rename a file even if you do not own the file
188. How many lines are in the file **out** after this command line:  
`echo hi >x ; echo ho >>x ; cat x x x >out`  
 a. 2            b. 3            c. 1            d. 0            e. 6
189. If file `/a` contains 30 lines, and file `/b` contains 50 lines, then how many lines are output on your screen by this command line: `cat /a | sort /b`  
 a. 30            b. 80            c. 20            d. 50            e. 0

190. What is the output on your screen of this command line:  
`umask 762 ; touch newfile ; ls -l newfile`
- r-- 1 me me 0 Oct 1 1:12 newfile
  - xr-x 1 me me 0 Oct 1 1:12 newfile
  - wx 1 me me 0 Oct 1 1:12 newfile
  - rwxrw--w- 1 me me 0 Oct 1 1:12 newfile
  - rw-rw--w- 1 me me 0 Oct 1 1:12 newfile
191. Given my directory `dir` and my file `dir/foo` owned by me, which permissions allow me to access and change or create new content (data) in the file `dir/foo` but not delete the file?
- Permissions 100 on directory `dir` and 100 on file `dir/foo`.
  - Permissions 300 on directory `dir` and 200 on file `dir/foo`.
  - Permissions 500 on directory `dir` and 600 on file `dir/foo`.
  - Permissions 600 on directory `dir` and 700 on file `dir/foo`.
  - Permissions 400 on directory `dir` and 400 on file `dir/foo`.
192. What is the link count of file `f` after this set of successful commands?  
`rm f ; touch f ; ln f bar`  
`cp bar x ; ln x y ; ln bar z ; ln z a`
- 5
  - 4
  - 1
  - 3
  - 2
193. If file `a` contains 2 lines, and file `b` contains 3 lines, then how many lines are output on your screen by this command line: `cat a | cat b`
- 5
  - 3
  - 2
  - 0
  - no output
194. Which of these command line will make file `foo` contain all of the content of file `a` followed by all of the content of file `b`?
- `cp a >foo ; cp b >>foo`
  - `cat a >foo ; cat b >>foo`
  - `mv a b >foo`
  - `echo a b >foo`
  - `cp a b >foo`
195. What is true about this output from `ls -il foo bar`?  
`871 -r----- 3 bin bin 2 Apr 22 10:15 foo`  
`872 -r----- 3 bin bin 2 Apr 22 10:15 bar`
- `foo` and `bar` each have two names (four names total)
  - `foo` and `bar` are names for the same file
  - this output is not possible
  - `foo` and `bar` are two of three names for this file
  - `foo` and `bar` each have three names (six names total)

196. Which of the following statements is true about this command line:  
`>foo file bar haven`
- The command `file` sees three arguments.
  - Error: The command name is missing from the command line.
  - The command `foo` sees three arguments.
  - The command `foo` sees only two arguments
  - The command `file` sees two arguments.
197. In a directory containing one file named `dog`, what is the output on your screen after this command line: `2>/dev/null ls nosuchfile`
- no output
  - `dog`
  - `bash: 2>/dev/null: command not found`
  - `ls: nosuchfile: No such file or directory`
  - `nosuchfile`
198. What is the correct syntax to redirect both standard output and standard error into the same output file?
- `sum foo1>out 2>1`
  - `sum >out foo 2>&1`
  - `sum 1>out 2>out foo`
  - `sum 2>&1 foo >out`
  - `sum 2>1 >out foo`
199. What is the output of this command line in an empty directory:  
`touch .a .b .c ; echo .*`
- `.a .b .c`
  - no output
  - `. . .a .b .c`
  - `.*`
  - an error message from `echo` saying `.*` does not exist
200. If directory `dir` contains only these four three-character file names: `.on`, `.tw`, `.th`, `.f.`, then what is the output on your screen of this command line:  
`echo dir/*`
- `dir/.on dir/.tw dir/.th`
  - no output
  - `dir/.f.`
  - `dir/. dir/.. dir/.on dir/.tw dir/.th dir/.f.`
  - `dir/*`
201. What numeric `chmod` permissions would you use to change the permissions on a file to `r-xr--rw-`?
- 513
  - 305
  - 122
  - 546
  - 212

202. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv ./foo/bar foo/./moo`
- the command fails because the name **moo** does not exist
  - the directory **foo** is now empty
  - the directory **foo** now contains only a file named **moo**
  - the command fails because the name **foo/./moo** does not exist
  - there is a second copy of the file named **bar** in the file named **moo**
203. If my current directory is **/foo**, which of these pathnames is equivalent to the file name **/foo/bar**?
- /bar**
  - ../foo/bar/.**
  - ../bar**
  - ./foo/bar**
  - ./bar**
204. In an empty directory, what is the output on your screen after this command line:  
`touch a ; ls >wc -l`
- 3
  - 1
  - 2
  - no output
  - 0
205. If **/etc/passwd** is a file name, which pathname always leads to the same file?
- /etc/etc/./passwd**
  - /etc/passwd/.**
  - ./etc/passwd**
  - ./etc/./passwd**
  - /etc/./passwd**
206. Which command line below outputs only lines 5-10 of the file named **foo**?
- `head -15 foo | tail -5`
  - `head -5 foo | tail -10`
  - `head -10 foo | tail -6`
  - `tail -10 foo | head -6`
  - `tail -15 foo | head -5`
207. Given my directory **dir** and my file **dir/f** owned by me, which permissions allow me to delete the file **dir/f** from the directory, but not change the content (data) in the file?
- Permissions **300** on directory **dir** and **500** on file **dir/f**.
  - Permissions **600** on directory **dir** and **300** on file **dir/f**.
  - Permissions **600** on directory **dir** and **500** on file **dir/f**.
  - Permissions **700** on directory **dir** and **200** on file **dir/f**.
  - Permissions **500** on directory **dir** and **500** on file **dir/f**.
208. If **ian** is a sub-directory that contains only the file **foo**, what happens after this command: `mv ./ian/./foo ./ian/./bar`
- the command fails because the name **./ian/./foo** does not exist
  - the command fails because the name **./ian/./bar** does not exist
  - the directory **ian** is now empty
  - the directory **ian** now contains only a file named **bar**
  - there is a second copy of the file **foo** in the file named **bar**
209. If you type the command `cat ,` which key sequence will send an EOF and take you back to the command prompt?
- [CTRL-U]**
  - [CTRL-D]**
  - [CTRL-I]**
  - [CTRL-R]**
  - [CTRL-C]**

210. Which command removes adjacent duplicate lines from a file?
- unique**
  - uniq**
  - duplicate**
  - dup**
  - dupl**
211. Given my directory **dir** and my file **dir/bar** owned by me, which permissions allow me to delete the file **dir/bar** from the directory, but not change the content (data) in the file?
- Permissions **100** on directory **dir** and **500** on file **dir/bar**.
  - Permissions **300** on directory **dir** and **400** on file **dir/bar**.
  - Permissions **500** on directory **dir** and **500** on file **dir/bar**.
  - Permissions **300** on directory **dir** and **200** on file **dir/bar**.
  - Permissions **100** on directory **dir** and **300** on file **dir/bar**.
212. What is the output of this command line in an empty directory:  
`touch x .a .ab .cde .fghi ; echo .??*`
- `.cde .fghi`
  - `. . . .a .ab .cde .fghi`
  - `.??*`
  - an error message from **echo** saying `.??*` does not exist
  - `.ab .cde .fghi`
213. If I am in directory **/home/me** and **mt** is an empty sub-directory, what is true after this command line:  
`touch ./mt/foo ; mv mt/./foo mt/./././me/./y`
- the directory **mt** now contains only a file named **y**
  - the command fails because the path **mt/./foo** does not exist
  - the directory **mt** is still empty
  - the command fails because the path **mt/./././me** does not exist
  - there is a second copy of the file **foo** in the file named **y**
214. If you type the command `grep pattern ,` which key sequence will send an EOF and take you back to the command prompt?
- [CTRL-R]**
  - [CTRL-D]**
  - [CTRL-U]**
  - [CTRL-L]**
  - [CTRL-C]**
215. The output of the **find** command is:
- finds lines inside a file matching a pattern
  - a recursive list of users logged in to the system
  - finds patterns inside a file corresponding to lines
  - account names matching a pattern
  - a recursive list of pathnames

216. Which of these statements is true?
- If `/y` is an empty directory, `echo /y/*` produces an error message.
  - If `/x` is an empty directory, `sort /x/*` produces an error message.
  - Only single quotes are strong enough to stop glob (wildcard) patterns from expanding.
  - Only double quotes are strong enough to stop glob (wildcard) patterns from expanding.
  - Only backslashes are strong enough to stop glob (wildcard) patterns from expanding.
217. Which of the following statements is true about this command line:  
`<dir/c cat dir/d`
- The command `dir/c` sees two arguments.
  - The command is always invalid.
  - The command `cat` sees two arguments.
  - The command `dir/c` sees only one argument
  - The command `cat` sees only one argument.
218. Which of the command lines below can generate a non-empty file?
- `sort foo >foo`
  - `grep 'foo' foo >foo`
  - `cat foo >foo`
  - `ls foo >foo`
  - `tail foo >foo`
219. What is in the file `bar` after this command line:  
`echo hi >x ; echo ho >x ; mv x y >bar`
- `hi` followed by `ho`
  - no such file (nonexistent)
  - nothing (empty file)
  - `hi`
  - `ho`
220. If I have a directory owned by me named `/x/y/z`, which action would increase its *link count* by exactly one?
- create one file named `/x/y/z2`
  - create a directory named `/x/y/z/x`
  - create a directory named `/x/y/z/.`
  - create a directory named `/x/y/z2`
  - create one file named `/x/y/z/x`
221. If my current working directory is `/home`, and my home directory is `/home/foo`, which command copies file `/bin/ls` into my home directory under the name `xx`?
- `cp ../../bin/./ls /foo/xx`
  - `cp ../../bin/ls ../foo/xx`
  - `cp ../home/./foo/./bin/ls foo/xx`
  - `cp ../foo/./bin/ls ../home/foo/xx`
  - `cp /foo/../../bin/ls ./foo/./xx`
222. Which *CTRL* key will erase a full line of typing in a terminal window?
- `^R`
  - `^I`
  - `^C`
  - `^D`
  - `^U`

223. Which of these command line will make `file3` contain all of the content of `file1` followed by all of the content of `file2`?
- `echo file1 file2 >file3`
  - `ln file1 file2 >file3`
  - `cp file1 file2 >file3`
  - `mv file1 file2 >file3`
  - `cat file1 file2 >file3`
224. What is the output on your screen after this command line:  
`echo hi >ls ; cat ls > wc`
- no output on screen
  - `1 1 3`
  - `ls`
  - `hi`
  - `1 1 2`
225. How many lines are in the file `bar` after this command line:  
`echo hi >x ; echo ho >>x ; cat x x >bar`
- 6
  - 2
  - 0
  - 4
  - 1
226. How many arguments are passed to the command by the shell on this command line: `<cow cow "-x" -y '-z' >cow cow`
- 6
  - 4
  - 3
  - 5
  - 2
227. If I am in my home directory named `/home/me` and `dir` is an empty sub-directory, what is true after this command line:  
`touch new ; mv ./dir/./new ../me/old`
- the command fails because the path `./dir/./new` does not exist
  - the command fails because the path `../me/old` does not exist
  - there is a second copy of the file named `new` in the file named `old`
  - the directory `dir` now contains only a file named `old`
  - the parent directory of `dir` now has a file named `old` in it
228. What is the output on your screen of this command line:  
`echo bat >pig ; echo one | tail pig`
- `bat`
  - an error message
  - `one` followed by `bat`
  - `one`
  - `bat` followed by `one`
229. What is the result of this exact command line:  
`echo /etc/passwd hello`
- the text `/etc/passwd` and `hello` will be displayed
  - all the files under `/etc/passwd` with the name `hello` will be displayed
  - file `/etc/passwd` will be copied to `hello`; the names will be displayed as well
  - the contents of the files `/etc/passwd` and `hello` will be displayed
  - a list of file names matching `/etc/passwd` and `hello` will be displayed

230. What is true about this output from `ls -il foo bar`?
- ```
816 -rw-r--r-- 2 root root 3 Jan 24 01:03 foo
817 -rw-r--r-- 2 root root 3 Jan 24 01:03 bar
```
- `foo` and `bar` are names for different files
 - `foo` and `bar` are two of three names for this file
 - `foo` and `bar` are names for the same file
 - `foo` and `bar` each have three names (six names total)
 - this output is not possible
231. What is the link count of file `foo` after this set of successful commands?
- ```
rm foo ; touch foo ; ln foo bar
cp bar a ; ln a b ; ln bar c ; cp c a
```
- 4
  - 2
  - 1
  - 3
  - 5
232. Which command line displays the contents of the Unix `passwd` file one page at a time?
- `less </etc/passwd`
  - `cat /etc/passwd >less`
  - `/etc/passwd >less`
  - `/etc/passwd | less`
  - `less | /etc/passwd`
233. What command shows all the lines in file `cow` that contain the string `pig`?
- `cat cow > grep pig`
  - `grep cat cow pig`
  - `grep pig >cow`
  - `grep cow pig`
  - `grep pig <cow`
234. What is the link count of directory `d` after this set of successful commands?
- ```
mkdir d ; cd d ; touch a ; mkdir b c d
```
- 6
 - 3
 - 4
 - 5
 - 2
235. Which command line displays all the non-hidden names in the current directory that contain the case-insensitive word `me` (and no others)?
- `echo *(M,m,E,e)*`
 - `echo *[Mm][Ee]*`
 - `echo ?[MmEe]?`
 - `echo *[me]*`
 - `echo *[MmEe]*`
236. Given my directory `dir` and my file `dir/c` owned by me, which permissions allow me to access and change or create new content (data) in the file `dir/c` but not delete the file?
- Permissions `400` on directory `dir` and `400` on file `dir/c`.
 - Permissions `200` on directory `dir` and `200` on file `dir/c`.
 - Permissions `100` on directory `dir` and `200` on file `dir/c`.
 - Permissions `600` on directory `dir` and `700` on file `dir/c`.
 - Permissions `100` on directory `dir` and `100` on file `dir/c`.
237. If file `a` contains 2 lines, and file `b` contains 3 lines, then how many lines are in file `c` after this command line: `ln a d ; ln b e ; cp d e >c`
- 0
 - 3
 - 5
 - 4
 - 2

238. What is true about this output from `ls -il foo bar`?
- ```
23 -rwxr----- 3 root root 2 Jul 31 12:33 foo
24 -rwxr----- 3 root root 2 Jul 31 12:33 bar
```
- `foo` and `bar` are names for the same file
  - `foo` and `bar` are names for different files
  - this output is not possible
  - `foo` and `bar` are two of three names for this file
  - `foo` and `bar` each have two names (four names total)
239. What is the possible output on your screen of this command line:
- ```
echo wc >date ; sort date >date ; cat date
```
- `Fri Mar 16 12:00:00 EST 2012`
 - `1 6 28 date`
 - `1 6 29 date`
 - no output on screen
 - `wc`
240. How many lines are in the file `out` after this command line:
- ```
date >f ; ls f >>f ; cat f f >out
```
- 6
  - 4
  - 2
  - 1
  - 0
241. Which of the following statements is true about this command line:
- ```
>dir/c cat dir/d
```
- The command `cat` sees only one argument.
 - The command `dir/c` sees two arguments.
 - The command `cat` sees two arguments.
 - The command `dir/c` sees only one argument
 - The command is always invalid.
242. In an empty directory, how many files are created by this command line:
- ```
touch a "b c" ' ' d e
```
- 3
  - 4
  - 5
  - 7
  - 6
243. Which statement is true, given this long directory listing from `ls`:
- ```
drwxr-x--x 256 ian user 512 May 30 12:35 dir
```
- The number 256 is the inode number of this directory.
 - The number 256 is the size of this directory.
 - The number 512 is the size of this directory.
 - The number 512 is the count of links (names) this directory has.
 - The number 256 is the octal permissions of this directory.
244. Which command shows the name of the current computer:
- `history`
 - `find`
 - `whoami`
 - `hostname`
 - `comname`

245. Who is the owner of file **bar** after you execute this sequence of commands in your home directory:
`ln /etc/passwd foo ; ln foo one`
`ln one two ; ln two bar`
- you own the file **bar**
 - you cannot execute the given commands; no file will be created
 - the file is owned by **root**
 - the file is owned by **passwd**
 - the file is owned by **home**
246. What is the output on your screen of this command line:
`echo hi >hi ; head hi >hi ; wc hi`
- no output
 - 1 1 3 hi
 - 1 1 2 hi
 - 0 0 0 hi
 - 2 2 4 hi
247. Which command line shows the file in **/bin** with the largest checksum?
- `ls /bin/* | sum | sort -nr | head -1`
 - `sum /bin/* | sort -nr | head -1`
 - `cat /bin | sum | sort -nr | head -1`
 - `sum /bin | sort -nr | head -1`
 - `cat /bin/* | sum | sort -nr | head -1`
248. Which command line outputs inode/filename pairs for names in the current directory, sorted by inode number?
- `ls -ai | sort -n`
 - `ls -node * > sort -n`
 - `sort -n | ls -ai`
 - `ls -i * > sort -n`
 - `ls /* | sort -node`
249. How do I search for the string **foo** in the text display output from the **man** command?
- `find foo`
 - select "Search" in the menu
 - `/foo`
 - `search foo`
 - `@foo`
250. If I am in my home directory named **/home/me** and **dir** is an empty sub-directory, what is true after this command line:
`touch new ; mv ./dir/../new ../me/old`
- the command fails because the path `./dir/../new` does not exist
 - there is a second copy of the file **new** in the file named **old**
 - the command fails because the path `../me/old` does not exist
 - the parent directory of **dir** now has a file named **old** in it
 - the directory **dir** now contains only a file named **old**
251. If file **foo** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:
`sort foo foo | tail -5 | head -1`
- 9
 - 1
 - 7
 - 5 5
 - 1 1

252. What is the link count of directory **dir** after this set of successful commands?
`mkdir dir ; cd dir ; touch one ; mkdir two`
- 5
 - 3
 - 4
 - 1
 - 2
253. Given an existing file of yours named **foo**, what is the output on your screen of this command line: `echo hi >foo ; sort foo >foo ; wc foo`
- 0 0 0 foo
 - 1 1 2 foo
 - 1 1 3 foo
 - 2 2 4 foo
 - no output
254. Which of these commands makes a file owned by me, also executable by me?
- `chmod x=u ./myfile`
 - `chmod x+u myfile`
 - `umask 777 myfile`
 - `chmod u+x ./myfile`
 - `umask 111 myfile`
255. If my current directory is **/lib**, which of these pathnames is equivalent to the file name **/lib/foo**?
- `./lib/foo`
 - `./foo`
 - `../lib/foo/.`
 - `/foo`
 - `../foo`
256. Given this `ls -il dir` long listing:
`454 drwxr-xr-x 123 me me 456 Dec 4 9:12 dir`
 How many subdirectories lie immediately under **dir**?
- 121
 - 454
 - 456
 - 458
 - 123
257. If my current directory contains these five two-character file names: **z1, z2, z*, z?, ??**, then which command below will remove only the single two-character name **z?** from the directory (and no others)?
- `rm \z?`
 - `rm "z?"`
 - `rm \?`
 - `rm z?`
 - `rm ?\?`
258. In an empty directory, how many files are created by this command line:
`touch 1 "2 3" ' 4 ' 5`
- 5
 - 4
 - 6
 - 3
 - 7
259. Which command below removes *only* this five-character file name containing a special character (and no others): **date?**
- `rm date/?`
 - `rm date*`
 - `rm date\?\?`
 - `rm ./date\?`
 - `rm ./date?`
260. What is the correct syntax to redirect both standard output and standard error into the same output file?
- `command 2>&1 >out`
 - `command 2>1 >out`
 - `command >out 2>1`
 - `command >out 2>&1`
 - `command 2>out >out`
261. If file **a** contains 2 lines, and file **b** contains 3 lines, then how many lines are in file **c** after this command line:
`sort a b >c ; cat a >>b ; sort c b >c a`
- 7
 - 0
 - 5
 - 8
 - 12

262. Which of the command lines below can generate a non-empty file?
- `grep -v foo foo >foo`
 - `tail -5 foo >foo`
 - `tr abc ABC <foo >foo`
 - `sort -r foo >foo`
 - `ls foo >foo`
263. Which command line below does not show any lines from inside the file `out`?
- `head out`
 - `sort out`
 - `wc out`
 - `more out`
 - `tail out`
264. Which pathname almost always leads to the same file named: `/etc/shadow`
- `/etc/shadow/../../../../`
 - `/etc/shadow/./`
 - `../etc/shadow`
 - `../../../../etc/./shadow`
 - `/etc/../../../../shadow`
265. In the output of the command `ls -a`, a dot (period) that *begins* a name signifies what?
- A name with an unprintable character.
 - The current directory.
 - The parent directory.
 - A current file.
 - A name that is hidden.
266. To change your own account password, use this exact command line:
- `$ passwd cst8207`
 - `$ passwd`
 - `$ passwd 10.50.254.150`
 - `$ passwd cst8207.idallen.ca`
 - `$ passwd idallen-ubuntu`
267. Which of the command lines below can generate a non-empty file?
- `head -5 foo >foo`
 - `cat foo foo foo >foo`
 - `sort foo >foo`
 - `wc -l foo >foo`
 - `tail foo >foo`
268. How many lines are in the file `bar` after this command line:
- ```
echo hi >x ; echo ho >>x ; cat x >bar
```
- 4
  - 0
  - 2
  - 1
  - 6
269. What would you type to find the string `tony` in the file `/etc/passwd`?
- `grep tony /etc/passwd`
  - `grep /etc/passwd tony`
  - `string tony /etc/passwd`
  - `find /etc/passwd tony`
  - `find tony /etc/passwd`
270. How many lines are in file `out` after this command line:
- ```
echo hi >dog >cat >out
```
- 3
 - 2
 - 1
 - 0
 - 4

271. What would you type to change the permissions on a file to `--x-wx-w-`?
- `chmod 121 file`
 - `chmod 322 file`
 - `chmod 122 file`
 - `chmod 654 file`
 - `chmod 132 file`
272. Which command line tells you the recursive count of all pathnames under the current directory and all subdirectories?
- `ls | wc`
 - `find | wc`
 - `wc "$PWD"`
 - `wc .`
 - `wc *`
273. If directory `cow` contains only these four three-character file names: `.AA`, `.A1`, `.BB`, `.B.`, then what is the output on your screen of this command line:
- ```
echo cow/*
```
- no output
  - `cow/*`
  - `cow/.AA cow/.A1 cow/.BB`
  - `cow/.B.`
  - `cow/.AA cow/.A1 cow/.BB cow/.B.`
274. If my current working directory is `/var`, which command copies the password file into directory `/var/ian` under the name `bar`?
- `cp ./ian/../../../../etc/passwd ian/bar`
  - `cp ../../etc/passwd ../ian/bar`
  - `cp ../../etc/./passwd /ian/bar`
  - `cp ../ian/./etc/passwd ../var/ian/bar`
  - `cp ../var/./ian/./etc/passwd ./ian/./bar`
275. The output of the `whoami` command is:
- your HOME directory
  - the name of the current computer
  - your userid
  - the current directory
  - a list of users logged in to the system
276. In an empty directory, what is the output on your screen after this command line:
- ```
touch 1 2 .a .b ; echo .*
```
- 1 2
 - .*
 - .a .b
 - an error message from `echo` saying `.*` does not exist
 -a .b
277. How many arguments does the shell pass to this `echo` command:
- ```
echo 'It's a bird! No! It's a plane!'
```
- 1
  - 4
  - 2
  - 3
  - 5

278. If my current directory is `/etc`, which of these pathnames is equivalent to the file name `/etc/passwd`?
- `../../../../etc/./passwd`
  - `./etc/passwd`
  - `../etc/passwd/.`
  - `/root/etc/passwd`
  - `passwd/.`
279. Which command below is the best way to find a line containing a question mark (?) in the file `/etc/passwd`?
- `grep /etc/passwd ./?`
  - `grep ? /etc/passwd`
  - `grep ./? /etc/passwd`
  - `grep '?' /etc/passwd`
  - `grep ? >/etc/passwd`
280. How many arguments does the shell pass to this `echo` command:  
`echo one two three >four five`
- 3
  - 5
  - 2
  - 4
  - 6
281. What is the output of this command line in an empty directory:  
`touch 1 .1 23 .23 456 ; echo [12]*`
- an error message from `echo` saying `[ab]*` does not exist
  - `1 23`
  - `[12]*`
  - `1 .1 23 .23`
  - `1 .1 23 .23 456`
282. What do you do on Linux/Unix to erase an entire line of typing?
- type `[CTRL-D]`
  - type `[CTRL-W]`
  - select the line with the mouse and use the **BACKSPACE** key
  - select the line with the mouse and use the **DEL** key
  - type `[CTRL-U]`
283. Which command line creates a directory into which anyone can put a file, but in which nobody can see the names of the files that are there?
- `mkdir protected ; chmod 777 protected`
  - `mkdir protected ; chmod 333 protected`
  - `mkdir protected ; cd protected ; chmod go-x .`
  - `mkdir protected ; chmod 777 .`
  - `mkdir protected ; cd protected ; chmod go+wx .`
284. What is the output on your screen of this command line:  
`echo wc >wc ; wc wc >wc ; sort wc`
- no output
  - `1 1 3 wc`
  - `0 0 0 wc`
  - `wc`
  - `1 1 2 wc`

285. What command shows all the lines in file `/etc/group` that contain the string `idallen`?
- `grep idallen >/etc/group`
  - `cat /etc/group > grep idallen`
  - `cat /etc/group | wc idallen`
  - `grep /etc/group idallen`
  - `grep idallen </etc/group`
286. How many arguments does the shell pass to this `echo` command:  
`echo 'And it's not hard, it's just logical.'`
- 5
  - 3
  - 6
  - 7
  - 4
287. How many arguments does the shell pass to this `echo` command:  
`echo ' one two ' three ' four ' 5'6'`
- 4
  - 1
  - 9
  - 5
  - 6
288. In an empty directory, what is the output on your screen after this command line:  
`echo hi >a ; ls >wc -l`
- 2
  - no output
  - a
  - 0
  - 1
289. If my current working directory is `/home`, and my home directory is `/home/xx`, which command copies the password file into my home directory under the name `foo`?
- `cp ../home/xx/./etc/passwd ./xx/./foo`
  - `cp xx/./etc/passwd ../home/xx/foo`
  - `cp ../etc/passwd ../xx/foo`
  - `cp ../../etc/passwd /xx/foo`
  - `cp xx/../../etc/passwd xx/foo`
290. If I am in my home directory named `/home/me` and `sub` is an empty sub-directory, what is true after this command line:  
`touch ./fil ; mv sub/./fil ../me/cat`
- the directory `sub/..` now has a file named `cat` in it
  - there is a second copy of the file `fil` in the file named `cat`
  - the command fails because the path `sub/./fil` does not exist
  - the directory `sub` now contains only a file named `cat`
  - the command fails because the path `../me/cat` does not exist
291. If I am in my home directory named `/home/me` and `mt` is an empty sub-directory, what is true after this command line:  
`touch ../me/foo ; cp ./mt/./foo ./mt/./bar`
- the command fails because the path `./mt/./foo` does not exist
  - the file named `foo` is now renamed to `bar`
  - the directory `mt` now has a file named `bar` in it
  - the directory `mt` now contains two files
  - the directory `mt` is still empty

292. How many arguments and options are there to the command: `wc -wc wc`
- Two arguments, no options.
  - Two command line arguments, one of which contains two options.
  - Two command name arguments and two bundled options.
  - Two arguments, one of which is a single option and the other is a pathname.
  - Two options, no arguments.
293. Which command usually goes in your `.bash_profile` file?
- `source .bashrc`
  - `.bash_profile source`
  - `.bashrc source`
  - `cat .bashrc`
  - `source .bash_profile`
294. What would you type to change the permissions on a file to `-wxr-x--x`?
- `chmod 351 file`
  - `chmod 321 file`
  - `chmod 214 file`
  - `chmod 654 file`
  - `chmod 311 file`
295. Which command below removes *only* this four-character file name containing a special character (and no others): `xyz?`
- `rm xyz/?`
  - `rm -r xyz?`
  - `rm xyz/?`
  - `rm xyz\?`
  - `rm xyz\?`
296. What is the output on your screen of this command line:
- ```
umask 362 ; touch newfile ; ls -l newfile
```
- `--wx---r-- 1 me me 0 Oct 1 01:12 newfile`
 - `--wxrw--w- 1 me me 0 Oct 1 01:12 newfile`
 - `-r-----r-- 1 me me 0 Oct 1 01:12 newfile`
 - `-r----xr-x 1 me me 0 Oct 1 01:12 newfile`
 - `--wxr-x-w- 1 me me 0 Oct 1 01:12 newfile`
297. In the output of `ls -a`, a dot (period) that begins a name signifies what?
- A name with an unprintable character.
 - The parent directory.
 - The current directory.
 - A name that is hidden.
 - A current file.
298. In an empty directory, how many words are in file `foo` after this command line:
- ```
date >.bar >.out ; ls >foo
```
- 2
  - 3
  - 0
  - 1
  - 4
299. What command can you use to delete a directory that isn't empty?
- `rm -r dir`
  - `rmdir -r dir`
  - `deldir -r dir`
  - `deltree -r dir`
  - `del -r dir`

300. What is the output on your screen of this command line:
- ```
umask 156 ; mkdir newdir ; ls -ld newdir
```
- `dr-x-w-rw- 2 me me 512 Oct 1 1:12 newdir`
 - `dr-x--x--- 2 me me 512 Oct 1 1:12 newdir`
 - `drw--w---x 2 me me 512 Oct 1 1:12 newdir`
 - `d--xr-xrw- 2 me me 512 Oct 1 1:12 newdir`
 - `drw--w---- 2 me me 512 Oct 1 1:12 newdir`
301. In an empty directory, what is the output on your screen of this command line:
- ```
echo hi >foo ; cp foo bar | wc -l
```
- 0
  - no output
  - 1
  - 3
  - 2
302. Which command line below outputs only lines 11-15 of the Unix password file?
- `head -15 /etc/passwd | tail -5 /etc/passwd`
  - `tail -10 /etc/passwd | head -15 /etc/passwd`
  - `head -10 /etc/passwd | tail -15 /etc/passwd`
  - `tail -15 /etc/passwd | head -10`
  - `head -15 /etc/passwd | tail -5`
303. Which of the following is true, given this long directory listing:
- ```
755 drwxr-x--x 256 ian user 512 May 30 12:35 dir
```
- The number 512 is the count of links (names) this directory has.
 - The number 755 is the count of links (names) this directory has.
 - The number 256 is the octal permissions of this directory.
 - The number 512 is the size of this directory.
 - The number 256 is the inode number of this directory.
304. If I am in directory `/home/me` and `mt` is an empty sub-directory, what is true after this command line: `touch ./foo ; mv ./mt/./foo ../me/bar`
- the directory `mt` now contains only a file named `bar`
 - the command fails because path `./mt/./foo` does not exist
 - there is a second copy of the file `foo` in the file named `bar`
 - the command fails because path `../me/bar` does not exist
 - the directory `mt/..` now contains a file named `bar`
305. Which command line displays all the non-hidden names in the current directory that contain the letter `x` (and no others)?
- `echo x*`
 - `echo *x`
 - `echo [x]`
 - `echo ?x?`
 - `echo *x*`
306. What would you type to change the permissions on a file to `rw-r--r--`?
- `chmod 644 file`
 - `chmod 311 file`
 - `chmod 211 file`
 - `chmod 244 file`
 - `chmod 344 file`

307. In an empty directory, what is in file **out** after this command line:
`ls nosuchfile | wc -l >out`
- a. 0
 b. nothing (empty file)
 c. 1
 d. 10
 e. 11
308. If file **foo** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:
`cat foo foo | sort -r | head -4 | tail -1`
- a. 8
 b. 5
 c. 7
 d. 9
 e. 6
309. Which of these command line will make **foo** contain all of the content of **f1** followed by all of the content of **f2**?
- a. `cat f1 f2 >foo`
 b. `mv f1 f2 >foo`
 c. `ln f1 f2 >foo`
 d. `echo f1 f2 >foo`
 e. `cp f1 f2 >foo`
310. The option to **ls** that shows hidden names is:
- a. `-h`
 b. `-l`
 c. `-1`
 d. `-a`
 e. `-i`
311. If you type the command **cat**, which **CTRL** key will send an **EOF** and take you back to the command prompt?
- a. `^D`
 b. `^E`
 c. `^C`
 d. `^R`
 e. `^U`
312. What do you do on Linux/Unix to erase an entire line of typing?
- a. select the line with the mouse and use the **DEL** key
 b. type [**CTRL-C**]
 c. type [**CTRL-W**]
 d. type [**CTRL-U**]
 e. type [**CTRL-D**]
313. What would you type to change the permissions on a file to **-wxr-xrw-?**
- a. `chmod 356 file`
 b. `chmod 635 file`
 c. `chmod 563 file`
 d. `chmod 210 file`
 e. `chmod 421 file`
314. In a directory that contains only the file **single**, what happens after this command: `mv single double`
- a. the command fails because the name **double** does not exist
 b. an empty file named **double** is created
 c. there is only the file named **double** in the directory now
 d. the command fails because **single** is not a directory
 e. there is a copy of the file named **single** in the file named **double**
315. What command can you use to delete a directory that isn't empty?
- a. `del -r dir`
 b. `rmdir -r dir`
 c. `rm -r dir`
 d. `deldir -r dir`
 e. `mv -r dir`

316. Given this long listing:
`drwxr-xr-x 296 me me 448 Dec 4 9:12 dir`
 How many subdirectories lie immediately under **dir**?
- a. 448
 b. 296
 c. 294
 d. there is not enough information shown to answer the question
 e. 446
317. Which command line displays all the names in the current directory that are exactly three digits long (and no others)?
- a. `echo ???`
 b. `echo [0-9][0-9][0-9]`
 c. `echo [?][?][?]`
 d. `echo [3][3][3]`
 e. `echo [1-3][1-3][1-3]`
318. If my current working directory is **/home**, and my home directory is **/home/me**, which command copies the password file into my home directory under the name **foo**?
- a. `cp ../home/me/../../etc/passwd ../me/./foo`
 b. `cp ../etc/passwd ../me/foo`
 c. `cp ../../etc/passwd /me/foo`
 d. `cp ../etc/passwd ../me/foo`
 e. `cp ../me/../../etc/passwd ../home/me/foo`
319. In an empty directory, what is the output on your screen after this command line:
`echo hi >a ; ls nosuchfile 2>/dev/null`
- a. `ls: nosuchfile: No such file or directory`
 b. no output
 c. `ls: 2>/dev/null: No such file or directory`
 d. `nosuchfile`
 e. `a`
320. If file **twenty** contains twenty lines, and file **thirty** contains thirty lines then how many lines are output on your screen by this command line:
`tail twenty | cat thirty`
- a. 20
 b. 30
 c. 40
 d. 0
 e. 50
321. What is in the file **out** after this command line:
`echo hi >x ; echo ho >>x ; cp x y >out`
- a. no such file (nonexistent)
 b. nothing (empty file)
 c. **hi**
 d. **hi** followed by **ho**
 e. **ho**
322. What is contained in file **c** after this command line:
`echo foo >a ; ln a b ; echo bar >>b ; ln a c ; rm a`
- a. **foo**
 b. no such file (nonexistent)
 c. **foo** followed by **bar**
 d. **bar**
 e. nothing (empty file)

323. What is the result of this exact command line: `ls /foo bar`
- the names of the pathnames `/foo` and `bar` will be displayed
 - all the files under directory `/foo` with the name `bar` will be displayed
 - the contents of the files `/foo` and `bar` will be displayed
 - file `/foo` will be copied to `bar`
 - the two text strings `/foo` and `bar` will be displayed
324. What is the output on your screen after these command lines:
`echo 1 >x ; ln x y ; echo 2 >y`
`chmod 077 y ; cat x`
- no output on screen
 - an error message
 - 2
 - 1 followed by 2
 - 1
325. In an empty directory, how many words are in file `out` after this command line:
`touch a ; ls >out`
- 1
 - 4
 - 0
 - 2
 - 3
326. What is the output on your screen after these command lines:
`echo one >x ; ln x y ; echo two >y`
`echo ten >x ; cat y`
- no output on screen
 - one followed by two and ten
 - two
 - ten
 - one
327. What is the output on your screen after these command lines:
`echo one >x ; ln x y ; echo ten >y`
`echo two >x ; cat y`
- one followed by ten and two
 - no output on screen
 - one
 - two
 - ten
328. Which command line does *not* show any lines from inside the file `bat`?
- `tail bat`
 - `head bat`
 - `less bat`
 - `ls bat`
 - `sort bat`
329. Which command line below does not show any lines from inside the file `bat`?
- `head bat`
 - `more bat`
 - `ls bat`
 - `less bat`
 - `tail bat`
330. What is true about this output from `ls -il foo bar`?
- ```
861 -rw-r--r-- 2 root root 3 Jan 24 01:03 foo
861 -rw-r--r-- 2 bin root 3 Jan 24 01:03 bar
```
- this output is not possible
  - `foo` and `bar` are names for different files
  - `foo` and `bar` are names for the same file
  - `foo` and `bar` are two of three names for this file
  - `foo` and `bar` each have three names (six names total)

331. Which command line below does not show any lines from inside the file `pig`?
- `tail pig`
  - `head pig`
  - `more pig`
  - `ls pig`
  - `less pig`
332. What is the output on your screen after these command lines:  
`echo one >x ; ln x y ; echo two >>y`  
`sort x >y ; cat y`
- one
  - no output
  - one followed by two
  - two
  - two followed by one
333. How many arguments are passed to the command by the shell on this command line: `<foo foo " a 'b c' d " e f ' g " h " ' >foo`
- 3
  - 2
  - 6
  - 4
  - 5
334. Which command line outputs inode/filename pairs for names in the current directory, sorted by inode number?
- `sort ls -ia`
  - `ls -ia > sort -n`
  - `ls -a | sort -i`
  - `sort -n | ls -ai`
  - `ls -i -a | sort -n`
335. What is the resulting link count of empty directory `dir` after this set of successful commands? `cd dir ; touch foo ; ln foo one ; ln foo two`
- 2
  - 3
  - 1
  - 5
  - 4
336. What is the correct syntax to redirect both standard output and standard error into the same output file?
- `date 2>&1 >out`
  - `date >out 2>&1`
  - `date 1>out 2>out`
  - `date 2>1 >out`
  - `date 1>out 2>1`
337. Which of these statements is true?
- To make a hard link to file "`foo`" named "`bar`", file "`foo`" must exist.
  - You can make a hard link to a directory.
  - The "`ln`" command takes two arguments, so the maximum number of hard links a file can have is two.
  - If you give me write permission on a file owned by you, I can then use `chmod` to change its permissions.
  - You only need "`r--`" permission on directory "`foo`" for "`ls -l foo`" to work.
338. Given this successful command line (note the dot argument):  
`cd /tmp ; mkdir foo ; cd foo ; chmod u-x .`  
Which of the following subsequent commands will execute without any "permission denied" errors?
- `ls /tmp/foo`
  - `ls .`
  - `ls /tmp/foo/.`
  - `ls ..`
  - `ls /tmp/foo/..`

339. If file **a** contains 2 lines, and file **b** contains 3 lines, then how many lines are in file **c** after this command line: `ln a d ; ln d c ; cat a b >c`  
 a. 3                      b. 0                      c. 2                      d. 4                      e. 5
340. If I have a directory owned by me named **/1/2**, which action would increase its *link count* by exactly one?  
 a. create one file named **/1/2/3**  
 b. create a directory named **/1/2/3**  
 c. create a directory named **/1/2**  
 d. create one file named **/1/22**  
 e. create a directory named **/1/22**
341. How many arguments are passed to the command by the shell on this command line: `< pig pig -x " " -z -r" " > pig pig pig`  
 a. 7                      b. 5                      c. 9                      d. 6                      e. 8
342. What is the output on your screen of this command line:  
`echo pig >one ; echo cow | head -2 one`  
 a. **cow**                      b. **cow** followed by  **pig**  
 c.  **pig** followed by **cow**                      d. an error message  
 e.  **pig**
343. Which command below removes only this file name containing a special character:  
**abc\***  
 a. `rm abc/**`                      b. `rm abc\**`                      c. `rm abc\*`  
 d. `rm abc/*`                      e. `rm abc*`
344. Which command line shows the current date?  
 a. `bash >date ; cat date`                      b. `bash <date`  
 c. `echo date | bash`                      d. `bash date`  
 e. `date | bash`
345. Which of these command line will make **bar** contain all of the content of **f1** followed by all of the content of **f2**?  
 a. `cat f1 f2 >bar`                      b. `cp f1 f2 >bar`  
 c. `ln f1 f2 >bar`                      d. `echo f1 f2 >bar`  
 e. `mv f1 f2 >bar`
346. What happens when you try to change to the parent directory of **ROOT**, e.g.:  
`cd / ; cd ..`  
 a. you go to the parent directory containing your **C:** drive  
 b. the shell issues a warning, but changes to the parent  
 c. the shell current directory is still **ROOT**; no change  
 d. the shell asks you to retype this invalid directory  
 e. the shell issues an error message and does not change

347. If I am in directory **/home/me** and **mt** is an empty sub-directory, what is true after this command line: `touch foo ; mv ./mt/./foo ../me/bar`  
 a. there is a second copy of the file **foo** in the file named **bar**  
 b. the directory **mt** now contains only a file named **bar**  
 c. the command fails because the path **../me/bar** does not exist  
 d. the parent directory of **mt** now contains a file named **bar**  
 e. the command fails because the path **./mt/./foo** does not exist
348. In an empty directory, how many words are in file  **pig** after this command line:  
`touch pig pig ; ls > pig`  
 a. 1                      b. 4                      c. 0                      d. 2                      e. 3
349. What is true about this output from `ls -ild foo bar`  

```
96 -rwxr-xr-x 2 root root 3 Jan 24 01:03 foo
96 -rwxr-xr-x 3 root root 3 Jan 24 01:03 bar
```

 a. **foo** and **bar** are names for different files  
 b. **foo** and **bar** are names for the same file  
 c. **foo** and **bar** are two of five names for this file  
 d. this output is not possible  
 e. **foo** and **bar** each have three names (six names total)
350. If file **x** contains ten lines, and file **y** contains twenty lines, then how many lines are in file **cat** after this command line:  
`sort x y >z ; tail -5 x >x ; sort x y z >cat`  
 a. 40                      b. 60                      c. 55                      d. 50                      e. 0
351. If file **/a** contains 40 lines, and file **/b** contains 60 lines, then how many lines are output on your screen by this command line:  
`sort /a /b | cat /a | cat /b`  
 a. 160                      b. 40                      c. 200                      d. 100                      e. 60
352. Which of these statements is true?  
 a. To indicate End-of-File (no more input), type **[CTRL]-[C]**.  
 b. To erase an entire line of typing, type **[CTRL]-[D]**.  
 c. Unix commands must be entered in lower-case letters.  
 d. To delete a word from the shell command line, type **[CONTROL]-[D]**  
 e. Unix commands can be entered in upper-case or lower-case letters; they are equivalent.
353. Which of the command lines below can generate a non-empty file?  
 a. `ls -l file >file`  
 b. `cat file >file`  
 c. `head -1 file >file`  
 d. `sort -r file >file`  
 e. `grep pattern file >file`

354. Which of the command lines below can generate a non-empty file?
- `sort -r foo >foo`
  - `grep -v foo foo >foo`
  - `tail -5 foo >foo`
  - `tr abc ABC <foo >foo`
  - `wc -wc foo >foo`
355. What is the link count (number of names) of an empty directory?
- 2
  - 0
  - 4
  - 1
  - 3
356. What is the output of this command line in an empty directory:
- ```
touch 1 2 3 .a .b .c ; echo .??*
```
- `. . . 1 2 3 .a .b .c`
 - `. . . .a .b .c`
 - `.a .b .c`
 - `.??*`
 - an error message from `echo` saying `.??*` does not exist
357. In an empty directory, how many arguments are passed to the `cat` command in this command line: `touch a1 a2 ac ba .a ; cat a*`
- 3
 - none
 - 1
 - 2
 - 4
358. What is the result of this exact command line: `cat /foo bar`
- the names of the pathnames `/foo` and `bar` will be displayed
 - all the files under directory `/foo` with the name `bar` will be displayed
 - the two text strings `/foo` and `bar` will be displayed
 - file `/foo` will be copied to `bar`
 - the contents of the files `/foo` and `bar` will be displayed
359. What is the link count of file `f` after this set of successful commands?
- ```
rm f ; touch f ; ln f bar
cp bar x ; ln x y ; ln y z
```
- 2
  - 3
  - 1
  - 0
  - 4
360. What is the output on your screen of this command line:
- ```
echo wc >wc ; wc wc >wc ; head wc
```
- `1 1 3 wc`
 - `wc`
 - no output
 - `0 0 0 wc`
 - `1 1 2 wc`
361. Given the pathname `/etc/passwd`, the *basename* of this pathname is:
- `/etc`
 - `etc`
 - `etc/passwd`
 - `/`
 - `passwd`
362. Given this long listing:
- ```
drwxr-xr-x 448 me me 296 Dec 4 9:12 dir
```
- How many subdirectories lie immediately under `dir`?
- 296
  - 448
  - there is not enough information shown to answer the question
  - 294
  - 446

363. If my current working directory is `/home`, and my home directory is `/home/me`, which command copies the password file into my home directory under the name `foo`?
- `cp ../../etc/passwd ../me/foo`
  - `cp me/../../etc/passwd ../me/foo`
  - `cp ../../etc/./passwd /me/foo`
  - `cp ../home/./me/./etc/passwd ../me/./foo`
  - `cp ../me/./etc/passwd ../home/me/foo`
364. In the output of `ls -a`, the one-character name `.` signifies what?
- The parent directory.
  - A current file.
  - A name that is hidden.
  - A name with an unprintable character.
  - The current directory.
365. Given this long listing:
- ```
drwxr-xr-x 2048 bin bin 4096 Jan 2 14:22 dir
```
- How many subdirectories lie immediately under `dir`?
- 2048
 - 4096
 - there is not enough information shown to answer the question
 - 2046
 - 4094
366. If directory `dir` contains these three four-character file names: `.123`, `.124`, `.???`, then what is the output on your screen of this command line:
- ```
echo dir/????
```
- no output
  - `echo: dir/????: No such file or directory`
  - `dir/????`
  - `dir/.123 dir/.124 dir/.???`
  - `dir/.123 dir/.124`
367. How many arguments does the shell pass to this `echo` command:
- ```
echo " 1 2 "three ' 4 ' five"6"
```
- 1
 - 4
 - 3
 - 5
 - 9
368. What type and permissions result from this command line:
- ```
umask 623 ; touch newfile ; ls -l newfile
```
- `----r--r--`
  - `---xr-xr--`
  - `-rw--w--wx`
  - `----r---wx`
  - `-r-x-w--wx`



369. If I am in directory `/home/me` and `mt` is an empty sub-directory, what is true after this command line: `touch ./foo ; mv mt/./foo mt/./bar`
- the directory `./me` now contains a file named `bar`
  - the command fails because the path `mt/./foo` does not exist
  - the command fails because the path `mt/./bar` does not exist
  - the directory `mt` now contains only a file named `bar`
  - there is a second copy of the file `foo` in the file named `bar`
370. If you type the command `echo 'missing quote ,`, which key sequence will interrupt it and take you back to the command prompt?
- `[CTRL-C]`
  - `[CTRL-L]`
  - `[CTRL-U]`
  - `[CTRL-R]`
  - `[CTRL-D]`
371. Given my directory `dir` and my file `dir/foo` owned by me, which permissions allow me to access and change or create new content (data) in the file `dir/foo` but not delete the file?
- Permissions `100` on directory `dir` and `200` on file `dir/foo`.
  - Permissions `200` on directory `dir` and `200` on file `dir/foo`.
  - Permissions `400` on directory `dir` and `400` on file `dir/foo`.
  - Permissions `600` on directory `dir` and `700` on file `dir/foo`.
  - Permissions `500` on directory `dir` and `100` on file `dir/foo`.
372. If file `foo` contains 99 lines, each of which is the two-digit line number of the line in the file (01 through 99), what is the output on your screen of this command:  
`sort foo foo | tail -4 | head -1`
- 98
  - 04 04
  - 01 01
  - 96
  - 96 96
373. Which command line displays the contents of the Unix `passwd` file one page at a time?
- `more < /etc/passwd`
  - `/etc/passwd >more`
  - `/etc/passwd | more`
  - `cat /etc/passwd >more`
  - `more | /etc/passwd`
374. In an empty directory, what is the output on your screen after this command line:  
`echo hi >a ; sort * 1>/dev/null`
- no output
  - `a`
  - `sort: 1>/dev/null: No such file or directory`
  - `sort: *: No such file or directory`
  - `hi`
375. If file `/a` contains 7 lines, and file `/b` contains 5 lines, then how many lines are in file `/c` after this command line:  
`cat /a /b >/c ; sort /c >/c ; sort /c /a /b >/c`
- 0
  - 7
  - 24
  - 12
  - 5

376. What command can you use to delete an empty directory?
- `mvdir`
  - `deldir`
  - `erase`
  - `rmdir`
  - `delete`
377. What is the output of this command line in an empty directory:  
`touch .a .b .c ; echo [.]*`
- no output
  - `[.]*`
  - `. . . .a .b .c`
  - `.a .b .c`
  - an error message from `echo` saying `[.]*` does not exist
378. Given this successful command line (note the dot argument):  
`cd /home/foo ; mkdir bar ; cd bar ; chmod -x .`  
Which of the following subsequent commands will execute without any "permission denied" errors?
- `ls /home/foo/bar/..`
  - `ls .`
  - `ls ..`
  - `ls /home/foo/bar/.`
  - `ls /home/foo/bar`
379. Which of these statements is true?
- Command `apropos` is an exact synonym for command `man`.
  - To erase an entire line of typing, type `[ALT]-[DELETE]`.
  - To interrupt a Unix process from the keyboard, type `[CONTROL]-[D]`.
  - To indicate End-of-File (no more input) to a program, type `[CONTROL]-[D]`.
  - The `file` command creates a new, empty file in the current directory
380. In an empty directory, what is in file `count` after this command line:  
`ls ??? | wc -w >count`
- 1 1 1
  - nothing (empty file)
  - 1 1 2
  - 0
  - 1
381. In an empty directory, how many lines are in file `out` after this command line:  
`ls . .. nosuchfile 2>out`
- 0
  - 4
  - 2
  - 1
  - 3
382. If directory `/a` contains these seven two-character file names: `aa`, `ab`, `ac`, `ad`, `a?`, `a*`, `a.`, then which command below will remove only the single two-character name `a*` from the directory (and no others)?
- `rm /a/a*`
  - `rm /a*`
  - `rm /a/a?`
  - `rm "/a/a*"`
  - `rm /a/*`

383. What is the output on your screen of this command line:  
`umask 475 ; mkdir newdir ; ls -ld newdir`  
 a. `d-wxrwx-w- 2 it it 400 Jul 3 8:00 newdir`  
 b. `dr-xrwxr-x 2 it it 400 Jul 3 8:00 newdir`  
 c. `dr--rwxr-x 2 it it 400 Jul 3 8:00 newdir`  
 d. `d-wx----w- 2 it it 400 Jul 3 8:00 newdir`  
 e. `d-w-----w- 2 it it 400 Jul 3 8:00 newdir`
384. Which command below removes *only* this four-character file name containing a special character (and no others): `*foo`  
 a. `rm ./\*foo`                      b. `rm ?foo`                      c. `rm /*foo`  
 d. `rm \*\*foo`                      e. `rm .\/*foo`
385. How many arguments does the shell pass to this `echo` command:  
`echo " 1 '2 3' 4 "5 6 ' 7 "8 ' >out`  
 a. 5                      b. 4                      c. 6                      d. 2                      e. 3
386. What is the link count of directory `a` after this set of successful commands?  
`mkdir a ; mkdir a/b ; mkdir a/c ; mkdir a/b/c`  
 a. 5                      b. 1                      c. 3                      d. 2                      e. 4
387. Which of the following commands will leave `file1` non-empty?  
 a. `sort file1 > file1`                      b. `head file1 > file1`  
 c. `tail file1 > file1`                      d. `cat file1 > file1`  
 e. `wc file1 > file1`
388. In an empty directory, what is in file `out` after this command line:  
`ls nosuchfile | wc -l >out`  
 a. 1                      b. `out`  
 c. 0                      d. nothing (empty file)  
 e. `nosuchfile`
389. If the current directory contains 2 visible files and 3 visible sub-directories, what is the output on your screen of this command: `echo */.`  
 a. 3 directory names                      b. `*/.`                      c. no output  
 d. 2 file names                      e. 5 pathnames
390. If file `foo` contains 99 lines, each of which is the two-digit line number of the line in the file (01 through 99), what is the output on your screen of this command:  
`sort -r foo foo | tail -4 | head -1`  
 a. 96                      b. 04 04                      c. 96 96  
 d. 02                      e. 98

391. Given my directory `dir` and my file `dir/c` owned by me, which permissions allow me to delete the file `dir/c` from the directory, but not change the content (data) in the file?  
 a. Permissions 100 on directory `dir` and 200 on file `dir/c`.  
 b. Permissions 300 on directory `dir` and 500 on file `dir/c`.  
 c. Permissions 300 on directory `dir` and 300 on file `dir/c`.  
 d. Permissions 500 on directory `dir` and 400 on file `dir/c`.  
 e. Permissions 100 on directory `dir` and 100 on file `dir/c`.
392. What is the output on your screen of this command line:  
`echo wc >wc ; wc wc >wc ; cat wc`  
 a. 0 0 0 wc                      b. no output                      c. wc  
 d. 1 1 2 wc                      e. 1 1 3 wc
393. How many arguments are passed to the command by the shell on this command line: `<cow cow "-x "-y '-z' >cow cow`  
 a. 4                      b. 6                      c. 5                      d. 3                      e. 7
394. In an empty directory, what is the output on your screen after this command line:  
`ls nosuchfile 2>out`  
 a. `nosuchfile not found`                      b. no output  
 c. 2 not found                      d. `nosuchfile 2 not found`  
 e. `nosuchfile`
395. What is the output on your screen after this command line:  
`mkdir foo ; rmdir foo | wc -c`  
 a. 0                      b. 1                      c. no output  
 d. 3                      e. 4
396. If `foo` is a sub-directory that contains only the file `bar`, what happens after this command: `mv foo/bar foo/moo`  
 a. an empty file named `moo` is created  
 b. the command fails because the name `moo` does not exist  
 c. the command fails because `bar` is not a directory  
 d. there is only the file named `moo` in the directory now  
 e. there is a second copy of the file `bar` in the file named `moo`
397. How do you search for the word `nongraphic` in the man page for `ls`?  
 a. type `man ls` at the shell, then `/nongraphic`  
 b. type `man nongraphic | grep ls` at the shell  
 c. type `man ls` at the shell, then `^F` (CTRL-F), then `nongraphic`  
 d. type `man ls -nongraphic` at the shell  
 e. type `man -k nongraphic` at the shell

398. In an empty directory, what is the output on your screen after this command line:  
`echo hi >.out ; ls *`
- `.out`
  - no output
  - `*`
  - an error message from `ls` saying `*` does not exist
  - `. .. .out`
399. Given an existing file of yours named `wc`, what is the output on your screen of this command line: `echo hi >wc ; sort wc >wc ; cat wc`
- `0 0 0 wc`
  - `2 2 4 wc`
  - `1 1 2 wc`
  - no output
  - `1 1 3 wc`
400. If the current directory contains 10 visible files and 15 visible sub-directories, what is the output on your screen of this command: `ls -d */.`
- no output
  - 15 directory names
  - `*/.`
  - 25 pathnames
  - an error message because `*/.` does not exist
401. What is the output on your screen of this command line:  
`echo cow >foo ; echo dog | head -1 foo`
- `foo`
  - `cow`
  - `dog` followed by `cow`
  - `dog`
  - `cow` followed by `dog`
402. What is the output on your screen of this command line:  
`echo pig >one ; echo bat | tail one`
- `bat` followed by `pig`
  - `pig` followed by `bat`
  - an error message
  - `bat`
  - `pig`
403. Which command below is the best way to find a line containing an asterisk (\*) in the file named `foo`?
- `grep foo "*" b. grep */* foo`
  - `grep <foo [*] d. grep * foo`
  - `grep '*' <foo`
404. What is the link count of directory `x` after this set of successful commands?  
`mkdir x ; mkdir x/y ; mkdir x/z ; mkdir x/y/z`
- 1
  - 4
  - 3
  - 2
  - 5

405. Which of the following is true, given this long directory listing:  
`drwxr-x--x 71 user staff 4096 May 30 12:35 dir`
- The number 71 is the size of this directory.
  - The number 71 is the inode number of this directory.
  - The number 71 is the count of links (names) this directory has.
  - The number 4096 is the count of links (names) this directory has.
  - The number 4096 is the inode number of this directory.
406. If the current directory contains 5 visible files and 10 visible sub-directories, what is the output on your screen of this command: `echo */.`
- 15 pathnames
  - `*/.`
  - no output
  - 5 file names
  - 10 directory names
407. What is the Unix user name for the Super-User account?
- `superuser`
  - `master`
  - `alterego`
  - `administrator`
  - `root`
408. Which of these statements is true?
- you can only remove a file name if the file is owned by you
  - you may be able to rename a file even if you do not own the file
  - you can change the permissions of any file to which you can write
  - you can only remove a file name if the file is writable by you
  - you can only make links to files owned by you
409. In an empty directory, how many arguments are passed to the `rm` command in this command line: `date >a1 ; touch a2 ba ca >all ; rm a*`
- 2
  - none
  - 4
  - 3
  - 1
410. What is the link count of directory `foo` after this set of successful commands?  
`mkdir foo ; cd foo ; touch a b c`
- 3
  - 1
  - 2
  - 5
  - 4
411. What would you see if you typed this command: `cat /users`
- The contents of your directory named `users`
  - The contents of the file `users` located in your home directory
  - The contents of the file `users` located in the root directory
  - The contents of the file `users` located in the parent directory
  - The contents of your subdirectory named `users`
412. Which command below removes *only* this four-character file name containing a special character (and no others): `abc*`
- `rm abc\*`
  - `rm abc/**`
  - `rm abc*`
  - `rm abc/*`
  - `rm abc\*`

413. What is the output of this successful command sequence?  
`cd /home/foo ; touch dir ; mkdir bar ; pwd`  
 a. /home/foo/bar                      b. /home/dir  
 c. /home/foo                            d. /home/bar  
 e. /home/foo/dir
414. What is the output on your screen after this command line:  
`echo one >x ; ln x y ; echo two >>y ; sort x`  
 a. one                                    b. one followed by two  
 c. two followed by one                d. two  
 e. no output
415. If file **twenty** contains twenty lines, and file **thirty** contains thirty lines, then how many lines are output on your screen by this command line:  
`tail thirty | cat twenty`  
 a. 21                      b. 20                      c. 0                      d. 30                      e. 50
416. What is the link count of file **f** after this set of successful commands?  
`rm f ; touch f ; ln f bar`  
`cp bar x ; ln x y ; ln bar z`  
 a. 3                      b. 1                      c. 4                      d. 5                      e. 2
417. Who is the owner of file **bar** after you execute this sequence of commands in your home directory:  
`ln /etc/passwd x ; ln x y ; cp y z ; ln y bar`  
 a. you cannot execute the given commands; no file will be created  
 b. the file is owned by **home**  
 c. you own the file **bar**  
 d. the file is owned by **root**  
 e. the file is owned by **passwd**
418. If file **foo** contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:  
`sort foo foo | tail -2 | head -1`  
 a. 8                      b. 2 2                      c. 9                      d. 1                      e. 8 8
419. Which of the following is true, given this long directory listing:  
`drwxr-x--x 123 ian user 456 May 30 12:35 dir`  
 a. The number 123 is the octal permissions of this directory.  
 b. The number 456 is the size of this directory.  
 c. The number 123 is the size of this directory.  
 d. The number 456 is the count of links (names) this directory has.  
 e. The number 123 is the inode number of this directory.
420. If directory **/a** contains these seven two-character file names: **aa, ab, ac, ad, a?, a\*, a.,** then which command below will remove only the single two-character name **a\*** from the directory (and no others)?  
 a. `rm /a/a?`                      b. `rm /a/*`                      c. `rm /a/a*`  
 d. `rm /a/a\*`                      e. `rm /a*`

421. Which command below removes *only* this five-character file name containing a special character (and no others): **yy?yy**  
 a. `rm yy?yy`                      b. `rm yy\?yy`                      c. `rm yy\\?yy`  
 d. `rm yy/?yy`                      e. `rm yy//?yy`
422. If file **a** contains 2 lines, and file **b** contains 3 lines, then how many lines are in file **c** after this command line:  
`ln a e ; ln b d ; ln d c ; cat e b >c`  
 a. 5                      b. 3                      c. 0                      d. 4                      e. 2
423. If **pig** is a sub-directory that contains only the file **dog**, what happens after this command: `mv pig/dog pig/././cat`  
 a. the command fails because the name **pig/././cat** does not exist  
 b. the command fails because the name **cat** does not exist  
 c. the directory **pig** now contains only a file named **cat**  
 d. there is a second copy of the file named **dog** in the file named **cat**  
 e. the directory **pig** is now empty
424. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv ./foo/bar foo/././moo`  
 a. there is a second copy of the file **bar** in the file named **moo**  
 b. the directory **foo** now contains only a file named **moo**  
 c. the command fails because the name **moo** does not exist  
 d. the command fails because the name **foo/././moo** does not exist  
 e. the directory **foo** is now empty
425. In an empty directory, what is the output on your screen after this command line:  
`ls out 2>/dev/null`  
 a. `ls: /dev/null: No such file or directory`  
 b. no output  
 c. `out`  
 d. `ls: out 2>/dev/null: No such file or directory`  
 e. `ls: out: No such file or directory`
426. What is the output on your screen after this command line:  
`echo xx >z ; ls z > wc`  
 a. 1 1 3                      b. 1 1 2                      c. 3  
 d. no output                      e. 2
427. Which command line displays the contents of the Unix **passwd** file one page at a time?  
 a. `cat less | /etc/passwd`                      b. `/etc/passwd cat less`  
 c. `/etc/passwd | less`                      d. `less /etc/passwd`  
 e. `cat /etc/passwd less`
428. Which of these commands makes a file owned by me, also readable by me?  
 a. `umask 300 ./myfile`                      b. `umask 400 myfile`  
 c. `chmod r+u myfile`                      d. `chmod u+r ./myfile`  
 e. `chmod r=u ./myfile`

429. What is the output on your screen of this command line:  
`umask 162 ; touch newfile ; ls -l newfile`
- `-rw---x-w- 1 me me 0 Oct 1 01:12 newfile`
  - `----rw--w- 1 me me 0 Oct 1 01:12 newfile`
  - `---xrw--w- 1 me me 0 Oct 1 01:12 newfile`
  - `-rw----r-- 1 me me 0 Oct 1 01:12 newfile`
  - `-rw---xr-x 1 me me 0 Oct 1 01:12 newfile`
430. What can you do to get back (redo) the last command you typed to the `bash` (Linux) shell?
- Use the "UpArrow" key.
  - Type `[ALT]-[F2]`
  - Use the "PageUp" key.
  - Type `[CONTROL]-[BACKSPACE]`
  - Type `[CONTROL]-[ALT]-[DEL]`
431. When doing an `ls -a`, the output pathname that is a double dot (`..`) signifies what?
- The parent directory.
  - The current directory.
  - A hidden file.
  - A file or directory with double links.
  - The root directory.
432. What is true about this output from `ls -il foo bar`?
- ```
871 -r----- 2 bin bin 3 Nov 12 12:55 foo
871 -r----- 2 bin bin 3 Nov 12 12:55 bar
```
- this output is not possible
 - `foo` and `bar` are names for different files
 - `foo` and `bar` are names for the same file
 - `foo` and `bar` are two of three names for this file
 - `foo` and `bar` each have three names (six names total)
433. What is the output of this command line if run in an empty directory:
- ```
touch A a ; echo * >"*" ; ls
```
- `A a >*`
  - `* >*`
  - `* A a`
  - `A a >A a`
  - No output
434. In a directory that contains only the file `foo`, what happens after this command:  
`cp foo bar`
- there is only the file named `bar` in the directory now
  - there is a copy of the file named `foo` in the file named `bar`
  - an empty file named `bar` is created
  - the command fails because `bar` is not a directory
  - the command fails because the name `bar` does not exist

435. What is the link count of directory `dir` after this set of successful commands?  
`mkdir dir ; cd dir ; touch foo ; mkdir a b c`
- 5
  - 2
  - 3
  - 4
  - 1
436. How many words are in file `out` after this command line:  
`echo one >two >three >out`
- 3
  - 2
  - 0
  - 1
  - 4
437. Which command displays the contents of the Unix `passwd` file one page at a time?
- `info /etc/passwd`
  - `page /etc/passwd`
  - `head /etc/passwd`
  - `more /etc/passwd`
  - `cat /etc/passwd`
438. What is true about this output from `ls -il foo bar`?
- ```
861 -rw-r--r-- 2 root root 3 Jan 24 01:03 foo
861 -rwxr-xr-x 2 bin bin 3 Nov 12 12:55 bar
```
- `foo` and `bar` each have three names (six names total)
 - `foo` and `bar` are names for the same file
 - `foo` and `bar` are names for different files
 - this output is not possible
 - `foo` and `bar` are two of three names for this file
439. What is the output on your screen of this command line:
`umask 547 ; mkdir newdir ; ls -ld newdir`
- `d-w--wxrwx 1 me me 0 Feb 20 07:55 newdir`
 - `d-w--w---- 1 me me 0 Feb 20 07:55 newdir`
 - `dr-xr--rwx 1 me me 0 Feb 20 07:55 newdir`
 - `d-w--wx--- 1 me me 0 Feb 20 07:55 newdir`
 - `dr--r--rw- 1 me me 0 Feb 20 07:55 newdir`
440. What is in file `out` after this command line: `echo a >out b c`
- `a b c`
 - nothing (empty file)
 - `echo a`
 - `a`
 - `b c`
441. Which of the command lines below can generate a non-empty file?
- `ls -i foo >foo`
 - `sort -r foo >foo`
 - `tail -5 foo >foo`
 - `cat foo >foo`
 - `grep foo foo >foo`
442. If my current directory is `/home`, and my home directory is `/home/me`, which command copies the password file into my home directory under the name `foo`?
- `cp me/../../etc/passwd ../home/me/foo`
 - `cp ../etc/passwd ../me/foo`
 - `cp ../../etc/passwd /me/foo`
 - `cp me/../../etc/passwd me/foo`
 - `cp ../home/me/../../etc/passwd ../me/./foo`

443. If I am in directory `/home/me` and `mt` is an empty sub-directory, what is true after this command line: `touch foo ; mkdir bar ; mv foo mt/bar`
- the command fails because `mt/bar` is not a directory
 - the directory `mt` now contains a file named `bar`
 - the directory `mt` is still empty
 - the directory `bar` now contains a file named `foo`
 - the directory `mt` now contains a file named `foo`
444. If you type the command `sleep 60`, which *CTRL* key will **interrupt** it and take you back to the command prompt?
- `^C`
 - `^U`
 - `^R`
 - `^D`
 - `^I`
445. If I have a directory owned by me named `/a/b/c/d`, which action would increase its *link count* by exactly one?
- create a directory named `/a/b/c/d`
 - create a directory named `/a/b/c/d2`
 - create one file named `/a/b/c/d2`
 - create one file named `/a/b/c/d/e`
 - create a directory named `/a/b/c/d/e`
446. Which command below removes *only* this four-character file name containing a special character (and no others): `*xyz`
- `rm "*"xyz"`
 - `rm *xyz`
 - `rm "*"xyz"`
 - `rm "'*xyz'`
 - `rm "'*xyz''`
447. To shut down your Fedora system in an orderly fashion:
- select VMware "VM|Stop this virtual machine"
 - type the three key `[CONTROL]-[ALT]-[DEL]`
 - select "System|Shut down"
 - logout from each terminal and the machine will shut down
 - type the three key `[CONTROL]-[ALT]-[F1]`
448. Which command pipeline outputs the count of the number of pathnames (including all subdirectories) that lie under the `/etc` directory?
- `man /etc ; wc`
 - `ls /etc ; wc`
 - `ls /etc | wc`
 - `find /etc | wc`
 - `dir /etc | count`
449. In an empty directory, how many arguments are passed to the `wc` command in this command line: `touch xx yy >zz 123 .a b. ; wc ??`
- 0
 - 2
 - 5
 - 4
 - 1
450. If file `foo` contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:
- ```
cat foo foo | sort | tail -4 | head -1
```
- 4
  - 1
  - no output
  - 8
  - 6

451. In the output of the command `ls -a`, the one-character name `.` signifies what?
- The parent directory.
  - A name with an unprintable character.
  - The current directory.
  - The ROOT directory.
  - A current file.
452. What is the output on your screen after this command line:
- ```
echo 1 >x ; ln x y ; echo 2 >>y ; sort x
```
- 2
 - 2 followed by 1
 - 1
 - 1 followed by 2
 - no output
453. What would you type to change the permissions on a file to `rw-r-xr--`?
- `chmod 351 file`
 - `chmod 212 file`
 - `chmod 221 file`
 - `chmod 530 file`
 - `chmod 654 file`
454. How many arguments does the shell pass to this `echo` command:
- ```
echo "cow "y " bat 'man x' " pig'a "hop' a b
```
- 7
  - 4
  - 11
  - 5
  - 6
455. What type and permissions result from this command line:
- ```
umask 745 ; mkdir newdir ; ls -ld newdir
```
- `d---w--w-`
 - `d----wx-w-`
 - `drwxr--r-x`
 - `drwx-wx-w-`
 - `drw-r--r--`
456. Which command line displays the contents of the Unix `passwd` file one page at a time?
- `cat /etc/passwd | vim`
 - `less | /etc/passwd`
 - `less /etc/passwd`
 - `/etc/passwd | less`
 - `cat less | /etc/passwd`
457. What can you do to get back (redo) the last command you typed to the `bash` (Linux) shell?
- Type `[CONTROL]-[ALT]-[UP]`
 - Type `[CONTROL]-[BACKSPACE]`
 - Use the "PageUp" key.
 - Type `[ALT]-[F2]`
 - Use the "UpArrow" key.
458. In the output of the command `ls -a`, a dot that begins a name signifies what?
- A current file.
 - The parent directory.
 - The current directory.
 - A name that is hidden.
 - A name with an unprintable character.

459. What is true about this output from `ls -il foo bar`

```
35 -rw-rw-r-- 2 bin bin 3 Jan 24 01:03 foo
36 -rw-rw-r-- 2 bin bin 3 Jan 24 01:03 bar
```

- a. `foo` and `bar` each have two names (four names total)
- b. `foo` and `bar` each have three names (six names total)
- c. `foo` and `bar` are two of three names for this file
- d. this output is not possible
- e. `foo` and `bar` are names for the same file

460. If file `foo` contains 9 lines, each of which is the one-digit line number of the line in the file (1 through 9), what is the output on your screen of this command:

```
cat foo foo | cat | tail -4 | head -1
```

- a. 6
- b. 9
- c. 8
- d. 5
- e. 7

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