PRINT Name: _____ **LAB Section:** | | | |

Test Version: `340` **One-Answer Multiple Choice** **228 Questions − 10 of 10%**

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

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1. **Did you read all the words of the test instructions on page one?**
   a. **`Jes`** *(Yes - Esperanto)* *b.* **`Igen`** *(Yes - Hungarian)*
   c. **`Tak`** *(Yes - Polish)* *d.* **`Sim`** *(Yes - Portuguese)*
   e. **`Taip`** *(Yes - Lithuanian)*
2. **My three-digit Lab Section number is:**
   a. My lecture room number, e.g. **`T130`**, **`T117`**
   b. My lab room number, e.g. **`B384`**, **`T321`**, **`J218`**, **`N201`**
   c. The timetable section number of my weekly 2-hour lab period.
   d. The Test Version number printed in the top left corner.
   e. My lecture section number, e.g. **`010`** or **`020`**.
3. 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. **`8`** *b.* **`12`** *c.* **`7`** *d.* **`0`** *e.* **`10`**
4. Which command line displays only the names in the current directory that are exactly three digits long (and no other names)?
   a. **`echo ???`** *b.* **`echo [1-3][1-3][1-3]`**
   c. **`echo [0-9][0-9][0-9]`** *d.* **`echo [3][3][3]`**
   e. **`echo [?][?][?]`**
5. 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 **`cat`** does not exist
   b. the directory **`pig`** now contains only a file named **`cat`**
   c. there is a second copy of the file **`dog`** in the file named **`cat`**
   d. the directory **`pig`** is now empty
   e. the command fails because the name **`pig/./cat`** does not exist
6. The command that creates a directory and all parent directories is:
   a. **`rmdir -r a/b/c`** *b.* **`mkdir -r a/b/c`**
   c. **`mkdir -p a/b/c`** *d.* **`rm -r a/b/c`**
   e. **`touch a/b/c`**

7. In an empty directory, what is the output on your screen after this command line:
   ```
   ls 2>/dev/null nosuchfile
   ```
   a. no output
   b. **`ls: /dev/null: No such file or directory`**
   c. **`nosuchfile`**
   d. **`ls: 2>/dev/null nosuchfile: No such file or directory`**
   e. **`ls: nosuchfile: No such file or directory`**
8. 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
   ```
   a. **`1`** *b.* no output *c.* **`2`**
   d. **`2`** followed by **`1`** *e.* **`1`** followed by **`2`**
9. Which of these pathnames is *not* an absolute pathname (after all shell expansions)?
   a. **`/foo`** *b.* **`foo`** *c.* **`/../foo`**
   d. **`~/foo`** *e.* **`$HOME/foo`**
10. In a directory that contains only the file **`foo`**, what happens after this command:
    ```
    cp foo bar
    ```
    a. an empty file named **`bar`** is created
    b. there is only the file named **`bar`** in the directory now
    c. the command fails because the name **`bar`** does not exist
    d. there is a copy of the file named **`foo`** in the file named **`bar`**
    e. the command fails because **`bar`** is not a directory
11. How many arguments does the shell pass to this **`echo`** command:
    ```
    echo one two three >four five
    ```
    a. **`6`** *b.* **`3`** *c.* **`5`** *d.* **`4`** *e.* **`2`**
12. If **`foo`** is a sub-directory that contains only the file **`bar`**, what happens after this command: **`cp foo/bar ./foo/../me`**
    a. the directory **`foo`** is now empty
    b. there is a second copy of the file **`bar`** in directory **`foo`**
    c. the directory **`foo`** now contains only a file named **`me`**
    d. there is a second copy of the file **`bar`** in the file named **`me`**
    e. the command fails because the name **`foo/bar`** does not exist
13. In an empty directory, what is the output on your screen after this command line:
    ```
    touch 1 2 .a .b ; echo .*
    ```
    a. **`. .. .a .b`**
    b. **`.a .b`**
    c. **`.*`**
    d. **`1 2`**
    e. an error message from **`echo`** saying **`.*`** does not exist

14. 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. there is a second copy of the file named **dog** in the file named **cat**
    d. the directory **pig** is now empty
    e. the directory **pig** now contains only a file named **cat**

15. If my current directory is **/usr**, which of these pathnames is equivalent to the pathname **/usr/x/y/z**?
    a. **x/./y/z** *b.* **./usr/x/y/z** *c.* **/x/y/z**
    d. **../usr/y/z** *e.* **../x/y/z**

16. What is the output of this command line in an empty directory:
    touch .12 .345 .6789 ; echo .??*
    a. no output
    b. **.12 .345 .6789**
    c. **. .. .12 .345 .6789**
    d. **.??***
    e. an error message from **echo** saying **.??*** does not exist

17. If **/etc/passwd** is a file name, which pathname always leads to the same file?
    a. **/etc/etc/../passwd** *b.* **/./etc/./passwd**
    c. **./etc/passwd** *d.* **/etc/passwd/.**
    e. **/etc/../passwd**

18. Given the pathname **a/b/c**, the *basename* of this pathname is:
    a. **b** *b.* **a** *c.* **c** *d.* **b/c** *e.* **a/b**

19. 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.* **1 1 2 cat** *c.* no output
    d. **0 0 0 cat** *e.* **2 2 4 cat**

20. To change your own account password, use this exact command line:
    a. **$ passwd cst8207.idallen.ca**
    b. **$ passwd options LOGIN**
    c. **$ passwd**
    d. **$ passwd root**
    e. **$ passwd cst8207**

21. In an empty directory, how many words are in file **pig** after this command line:
    touch pig pig ; ls >pig
    a. **3** *b.* **2** *c.* **0** *d.* **1** *e.* **4**

22. What is the output of this command line in an empty directory:
    touch 1 2 3 .a .ab .abc ; echo [.]*
    a. **. .. .a .ab .abc**
    b. **.a .ab .abc**
    c. no output
    d. an error message from **echo** saying **[.]*** does not exist
    e. **[.]***

23. How many lines are in the file **bar** after this command line:
    echo hi >x ; echo ho >>x ; cat x x >bar
    a. **0** *b.* **4** *c.* **2** *d.* **6** *e.* **1**

24. Which Unix command line deletes a directory and everything inside it?
    a. **rm −r dir** *b.* **rmdir −all dir**
    c. **rm −all dir** *d.* **rmdir −r dir**
    e. **deltree −all dir**

25. What is the output of this successful command sequence?
    cd /home/dir ; mkdir one ; mkdir two ; pwd
    a. **/two** *b.* **/home/dir/two**
    c. **/home/dir/one/two** *d.* **/home/dir/one**
    e. **/home/dir**

26. How do I search for the string **foo** in the text display output from the **man** command?
    a. **@foo** *b.* **/foo**
    c. **find foo** *d.* select "**Search**" in the menu
    e. **search foo**

27. 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
    a. **7** *b.* **9** *c.* **1** *d.* **5 5** *e.* **1 1**

28. How many lines are in file **out** after this command line:
    date >wc >cat >out
    a. **1 6 29** *b.* **1** *c.* **0**
    d. **0 0 0** *e.* **2**

29. What would you type to find the string **tony** in the file **/etc/passwd**?
    a. **find /etc/passwd −name tony −print**
    b. **grep /etc/passwd tony**
    c. **find /etc/passwd −user tony −print**
    d. **grep tony /etc/passwd**
    e. **cat tony /etc/passwd**

30. In an empty directory, what is the output on your screen after this command line:
    touch a ; ls >wc −l
    a. **2** *b.* **0** *c.* **1**
    d. **3** *e.* no output

31. 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
```
a. **3** *b.* **16** *c.* **8** *d.* **0** *e.* **5**

32. If **/etc/passwd** is a file name, which pathname always leads to the same file?
a. **/etc/../../passwd** *b.* **./etc/passwd**
c. **/etc/passwd/../..** *d.* **/../etc/./passwd**
e. **/etc/passwd/.**

33. In a manual page **SYNOPSIS** section, square brackets (**[]**) mean:
a. a GLOB pattern matching a list *b.* no special meaning
c. an arithmetic expression *d.* something that is optional
e. something that is repeated

34. The shell expands a leading tilde (**~**) in a pathname (e.g. **~/foo**) to be:
a. the directory **/root** *b.* the ROOT directory
c. the current directory *d.* your HOME directory
e. the parent directory

35. What is the possible output on your screen of this command line:
```
echo wc >date ; sort date >date ; cat date
```
a. **Fri Mar 16 12:00:00 EST 2012**
b. **wc**
c. **1 6 28 date**
d. no output on screen
e. **1 6 29 date**

36. 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. **. ..**
d. no output on screen
e. **.**

37. 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/.**

38. In an empty directory, what is the output on your screen after this command line:
```
ls out 2>/dev/null
```
a. no output
b. **ls: /dev/null: No such file or directory**
c. **ls: out 2>/dev/null: No such file or directory**
d. **out**
e. **ls: out: No such file or directory**

39. 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***
a. none *b.* **2** *c.* **4** *d.* **3** *e.* **1**

40. 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/????
```
a. **dir/.123 dir/.124**
b. **dir/.123 dir/.124 dir/.???**
c. **echo: dir/????: No such file or directory**
d. **dir/????**
e. no output

41. In an empty directory, what happens after this command line:
```
mkdir a b c ; mv a b c
```
a. the directories **a** and **b** are moved into the directory **c**
b. the directories **a** and **b** are appended to the directory **c**
c. an error message: **mv: target 'c' is not a directory**
d. the directories **a**, **b**, and **c** are moved to the current directory
e. the directories **a**, **b**, and **c** are moved to the directory **c**

42. Which pathname almost always leads to the same file named: **/etc/passwd**?
a. **../etc/passwd** *b.* **/etc/./etc/../passwd**
c. **./etc/passwd** *d.* **/etc/passwd/.**
e. **/etc/../etc/./passwd**

43. What is the result of this exact command line: **ls /foo bar**
a. all the files under directory **/foo** with the name **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. the contents of the files **/foo** and **bar** will be displayed
e. file **/foo** will be copied to **bar**

44. In an empty directory, what happens after this command line:
```
touch a b c ; mv a b c
```
a. an error message: **mv: target 'c' is not a directory**
b. the files **a**, **b**, and **c** are moved to the directory **c**
c. the files **a** and **b** are appended to the file **c**
d. the files **a** and **b** are moved into the directory **c**
e. the files **a**, **b**, and **c** are moved to the current directory

45. If **/etc/shadow** is a file name, which pathname always leads to the same file?
a. **/etc/shadow/./.** *b.* **/etc/../../shadow**
c. **/etc/shadow/../..** *d.* **/./../etc/./shadow**
e. **./../etc/shadow**

46. If a shell GLOB pattern fails to match anything, what happens by default? The shell:
    a. gives a warning message but continues
    b. removes the pattern and passes nothing
    c. passes the pattern unchanged to the command
    d. gives an error message and does not execute
    e. returns the closest match to the pattern

47. To prevent disconnections when using the Windows version of **PuTTY**, you should make this configuration change:
    a. use your student number as your password
    b. use your ACSIS password as your password
    c. set the seconds between keepalives to 55
    d. your password will not echo on your screen as you type
    e. log in using your Blackboard userid

48. How many arguments and options are there to the command: **`wc -wc wc`**
    a. Two command line arguments, one of which contains two bundled options.
    b. Two command name arguments and two bundled options.
    c. Two arguments, one of which is a single option and the other is a pathname.
    d. Two arguments, no options.
    e. Two options, no arguments.

49. What do you do to erase an entire line of typing in the shell?
    a. type **[CTRL-W]**
    b. type **[CTRL-U]**
    c. type **[CTRL-C]**
    d. select the line with the mouse and use the **DEL** key
    e. type **[CTRL-D]**

50. If my current directory is **/bin**, which of these pathnames is equivalent to the file name **/bin/ls**?
    a. **`../bin/ls/.`** *b.* **`./bin/ls`** *c.* **`/root/bin/ls`**
    d. **`ls/.`** *e.* **`../../bin/ls`**

51. In which section of the manual do you find super-user and admin commands?
    a. 2 *b.* 1 *c.* 4 *d.* 3 *e.* 8

52. 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. **98** *b.* **96 96** *c.* **96**
    d. **02** *e.* **04 04**

53. 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.* **9** *c.* **8 8** *d.* **2 2** *e.* **1**

54. What is the *current directory*?
    a. This is where "root" goes when "root" logs in to the system
    b. The directory named **/current**
    c. The directory into which you are placed when you first log in
    d. The directory that your shell (or any Unix process) is in now
    e. The directory named **..** (dot dot)

55. What is an operating system?
    a. A computer program that manages the hardware.
    b. A video display card.
    c. A web-browser program.
    d. An accounting package program.
    e. A word-processing computer program.

56. The output of the **tree** command is:
    a. a recursive list of users logged in to the system
    b. an indented, recursive list of directories and their contents
    c. the tree of files under your HOME directory
    d. the tree of files under the ROOT directory
    e. the tree of users logged in to the system

57. Which command below is the best way to find a line containing a question mark (**?**) in the file **/etc/passwd**?
    a. **`find '?' /etc/passwd`** *b.* **`grep '?' /etc/passwd`**
    c. **`search '?' /etc/passwd`** *d.* **`grep './?' /etc/passwd`**
    e. **`grep /etc/passwd '?'`**

58. 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*`**
    a. **4** *b.* none *c.* **3** *d.* **1** *e.* **2**

59. Which command line lists all possible utilities available for compiling programs?
    a. **`man compile`** *b.* **`locate compile`**
    c. **`find compile`** *d.* **`grep 'compile' /etc/`**
    e. **`man -k compile`**

60. The shell meta-character used to separate multiple separate commands on the same line of typing is:
    a. **,** *b.* **;** *c.* **@** *d.* **:** *e.* **+**

61. Which of these characters is *not* a shell GLOB meta-character?
    a. **?** *b.* **]** *c.* ***** *d.* **[** *e.* **#**

62. What is the output of this command line in an empty directory:
```
touch x .a .ab .cde .fghi ; echo .??*
```
a. `.??*`
b. `.ab .cde .fghi`
c. `. .. .a .ab .cde .fghi`
d. an error message from **echo** saying `.??*` does not exist
e. `.cde .fghi`

63. If my current directory is **/etc**, which of these pathnames is equivalent to the pathname **/etc/x/y**?
a. `./etc/x/y` *b.* `../etc/y` *c.* `../x/y`
d. `/x/y` *e.* `../etc/x/y`

64. 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 command fails because **bar/mt** is not a directory
b. the directory **mt** is still empty
c. the directory **bar** now contains a file named **foo**
d. the directory **mt** now contains a file named **foo**
e. the directory **mt** now contains a directory named **bar**

65. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv ./foo/bar foo/../me`
a. the command fails because the name **./foo/bar** does not exist
b. the directory **foo** now contains only a file named **me**
c. there is a second copy of the file **bar** in the file named **me**
d. the directory **foo** is now empty
e. the command fails because the name **me** does not exist

66. 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*`
a. `5` *b.* `1` *c.* `3` *d.* `4` *e.* `2`

67. Which pathname almost always leads to the same file named: **/bin/ls**
a. `/./bin/./ls` *b.* `/bin/../ls`
c. `/./bin/./ls/.` *d.* `/bin/./bin/../ls`
e. `./bin/ls`

68. The basic purpose of a shell is:
a. to format hard drives
b. to expand pathnames
c. to find and run commands
d. to search for strings inside text files
e. to program system administration backup procedures

69. How many lines are in the file **bar** after this command line:
```
echo hi >x ; echo ho >>x ; cat x >bar
```
a. `1` *b.* `4` *c.* `0` *d.* `2` *e.* `6`

70. 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. `nosuchfile` *d.* `nosuchfile 2 not found`
e. `2 not found`

71. What is the output of this command line in an empty directory:
```
touch 1 2 3 .a .b .c ; echo .??*
```
a. `.??*`
b. `.a .b .c`
c. an error message from **echo** saying `.??*` does not exist
d. `. .. .a .b .c`
e. `. .. 1 2 3 .a .b .c`

72. To make the **bash** shell complete commands or file names, you type the first part of the command or file name and then press this key:
a. `[TAB]` *b.* `[CTRL]-[C]` *c.* `[ALT]-[F1]`
d. `[ALT]` *e.* `[CTRL]-[D]`

73. What is the output on your screen after this command line:
```
mkdir dir ; touch dir/.aa dir/.bb ; echo dir/*
```
a. `dir/. dir/.. dir/.aa dir/.bb`
b. no output
c. `dir/.aa dir/.bb`
d. `dir/*`
e. `dir/`

74. In an empty directory, how many lines are in file **out** after this command line:
```
ls . .. nosuchfile 2>out
```
a. `3` *b.* `0` *c.* `2` *d.* `1` *e.* `4`

75. What is the output of this command line in an empty directory:
```
touch .1 .2 .3 4 5 6 ; echo .*
```
a. `. .. .1 .2 .3`
b. an error message from **echo** saying `.*` does not exist
c. `4 5 6`
d. `.*`
e. `.1 .2 .3 4 5 6`

76. Which command line lists all possible utilities available for compiling programs?
a. `apropos compile` *b.* `locate compile`
c. `find compile` *d.* `man compile`
e. `grep compile /etc/`

77. 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
```

a. the directory **dir** now contains only a file named **old**
b. there is a second copy of the file named **new** in the file named **old**
c. the command fails because the path **../me/old** does not exist
d. the command fails because the path **./dir/../new** does not exist
e. the parent directory of **dir** now has a file named **old** in it

78. 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
```

a. **60** *b.* **0** *c.* **45** *d.* **50** *e.* **40**

79. If my current directory is **/lib**, which of these pathnames is equivalent to the file name **/lib/foo**?

a. **/foo** *b.* **../lib/foo/.** *c.* **./lib/foo**
d. **../foo** *e.* **./foo**

80. What is in the file **bar** after this command line:

```
echo hi >x ; echo ho >x ; mv x y >bar
```

a. **hi** followed by **ho** *b.* **hi**
c. no such file (nonexistent) *d.* **ho**
e. nothing (empty file)

81. 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**

a. the command fails because the path **mt/../foo** does not exist
b. there is a second copy of the file **foo** in the file named **bar**
c. the directory **../me** now contains a file named **bar**
d. the command fails because the path **mt/../bar** does not exist
e. the directory **mt** now contains only a file named **bar**

82. What is in file **foo** after this command line: **echo 1 2 >foo 3**

a. **echo 1 2** *b.* nothing (empty file)
c. **3** *d.* **1 2 3**
e. **1 2**

83. What is the output of this command line in an empty directory:

```
touch .a .b .c ; echo .*
```

a. **.***
b. **. .. .a .b .c**
c. **.a .b .c**
d. an error message from **echo** saying **.*** does not exist
e. no output

84. 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**?

a. **echo a b >foo**
b. **mv a b >foo**
c. **cp a >foo ; cp b >>foo**
d. **cp a b >foo**
e. **cat a >foo ; cat b >>foo**

85. Which of these statements is true?

a. Unix commands can be entered in upper-case or lower-case letters; they are equivalent.
b. To indicate End-of-File (no more input), type [CTRL]-[C].
c. Unix commands must be entered in lower-case letters.
d. To erase an entire line of typing, type [CTRL]-[D].
e. To delete a word from the shell command line, type [CTRL]-[D]

86. 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 **../me/bar** 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 **mt/../foo** does not exist

87. 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
```

a. the directory **mt** now contains two files
b. the directory **mt** is still empty
c. the directory **mt** now has a file named **dog** in it
d. the file named **cat** is now renamed to **dog**
e. the command fails because the path **./mt/../cat** does not exist

88. 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
```

a. there is a second copy of the file **foo** in the file named **y**
b. the directory **mt** now contains only a file named **y**
c. the directory **mt** is still empty
d. the command fails because the path **mt/./foo** does not exist
e. the command fails because the path **mt/../../me** does not exist

89. Which command line shows the file in **/bin** with the largest checksum?
    a. **sum /bin/* | sort -nr | head -1**
    b. **cat /bin | sum | sort -nr | head -1**
    c. **cat /bin/* | sum | sort -nr | head -1**
    d. **ls /bin/* | sum | sort -nr | head -1**
    e. **sum /bin | sort -nr | head -1**

90. In the output of the command **ls -a**, the one-character name **.** signifies what?
    a. The current directory.
    b. The ROOT directory.
    c. A name with an unprintable character.
    d. The parent directory.
    e. A current file.

91. In a directory containing one file named **mt**, what is the output on your screen after this command line: **ls 2>/dev/null nosuchfile**
    a. **ls: nosuchfile: No such file or directory**
    b. **mt**
    c. no output
    d. **bash: 2>/dev/null: command not found**
    e. **nosuchfile**

92. Which command pipeline outputs the count of the number of manual page titles that contain the keyword "sort"?
    a. **wc -k sort** *b.* **wc man sort**
    c. **man sort ; wc** *d.* **man sort | wc**
    e. **man -k sort | wc**

93. 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. **4** *b.* **2** *c.* **1** *d.* **3** *e.* none

94. What is the result of this exact command line: **cat /foo bar**
    a. the two text strings **/foo** and **bar** will be displayed
    b. file **/foo** will be copied to **bar**
    c. the contents of the files **/foo** and **bar** will be displayed
    d. all the files under directory **/foo** with the name **bar** will be displayed
    e. the names of the pathnames **/foo** and **bar** will be displayed

95. What is the output on your screen after this command line:
    echo hi >a ; ls a > wc
    a. **2** *b.* **1 1 3** *c.* **3**
    d. no output *e.* **1 1 2**

96. 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. **0** *b.* **20** *c.* **40** *d.* **50** *e.* **30**

97. If you type the command **sleep 60**, which *CTRL* key will **interrupt** it and take you back to the command prompt?
    a. **^C** *b.* **^R** *c.* **^I** *d.* **^U** *e.* **^D**

98. If **/bin/bash** is a file name, which pathname always leads to the same file?
    a. **/bin/bash/..** *b.* **./bin/bash**
    c. **/../../bin/bash** *d.* **/bin/../bash**
    e. **/bin/bash/.**

99. 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
    a. **0** *b.* **12** *c.* **5** *d.* **8** *e.* **7**

100. 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.* **1 1 2 wc**
    d. **1 1 3 wc** *e.* **wc**

101. The output of the **find** command is:
    a. finds lines in a file matching a pattern
    b. a recursive list of users logged in to the system
    c. finds patterns in a file corresponding to lines
    d. a recursive list of pathnames
    e. account names matching a pattern

102. What is the correct syntax to redirect both standard output and standard error into the same output file?
    a. **date 1>out 2>1** *b.* **date >out 2>&1**
    c. **date 2>1 >out** *d.* **date 1>out 2>out**
    e. **date 2>&1 >out**

103. What is the output on your screen of this command line:
    echo pig >one ; echo cow | head -2 one
    a. **cow** followed by **pig** *b.* **pig**
    c. **cow** *d.* **pig** followed by **cow**
    e. an error message

104. If my current working directory is **/var**, which command copies the password file into directory **/var/ian** under the name **bar**?
    a. **cp ./../etc/passwd ../ian/bar**
    b. **cp ../../etc/./passwd /ian/bar**
    c. **cp ././ian/../etc/passwd ../var/ian/bar**
    d. **cp ./ian/../../etc/passwd ian/bar**
    e. **cp ../var/./ian/../etc/passwd ./ian/./bar**

105. 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.* **0** *c.* **60** *d.* **55** *e.* **50**

106. What is the output on your screen after this command line:
```
echo hi >ls ; cat ls > wc
```
a. `ls`
b. no output on screen
c. `1  1  3`
d. `hi`
e. `1  1  2`

107. 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**?
a. `cp ../etc/passwd ./me/foo`
b. `cp ../../etc/passwd /me/foo`
c. `cp ./me/../etc/passwd ../home/me/foo`
d. `cp ../etc/passwd ../me/foo`
e. `cp ../home/me/../etc/passwd ./me/./foo`

108. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv foo/./bar foo/./.me`
a. there is a second copy of the file **bar** in the file named **me**
b. the command fails because the name **foo/./bar** does not exist
c. the command fails because the name **me** does not exist
d. the directory **foo** now contains only a file named **me**
e. the directory **foo** is now empty

109. What is your HOME directory?
a. The directory into which you are placed when you first log in
b. The top directory of the Unix/Linux/BSD/OSX file system tree
c. The directory named **/home**
d. This is where "root" goes when "root" logs in to the system
e. The directory that your shell is in now

110. If I am in my HOME directory named **/home/myhome** and **dir** is an empty sub-directory, what is true after this command line:
```
touch new ; mv ./dir/../new ../myhome/old
```
a. the command fails because the path **../myhome/old** does not exist
b. the parent directory of **dir** now has a file named **old** in it
c. there is a second copy of the file **new** in the file named **old**
d. the command fails because the path **./dir/../new** does not exist
e. the directory **dir** now contains only a file named **old**

111. What is the output of this command line in an empty directory:
```
touch .a .b .c ; echo [.]*
```
a. no output
b. `. .. .a .b .c`
c. `.a .b .c`
d. an error message from **echo** saying **[.]*** does not exist
e. `[.]*`

112. Which *CTRL* key will erase a full line of typing in a terminal window?
a. `^R` *b.* `^I` *c.* `^C` *d.* `^D` *e.* `^U`

113. If **foo** is a sub-directory that contains only the file **bar**, what happens after this command: `mv foo/me foo/bar`
a. the command fails because the name **me** does not exist
b. there is only the file named **me** in the directory now
c. there is a second copy of the file **bar** in the file named **me**
d. an empty file named **me** is created
e. the command fails because **bar** is not a directory

114. What does *quoting* mean on a shell command line?
a. using a leading tilde ("**~**") on a pathname to mean your HOME directory
b. turning off the special meaning of shell meta-characters
c. using more than one pathname argument to a command, e.g. `rm a b c`
d. setting the PS1 variable to be your shell prompt
e. typing a "control" character using the **[CTRL]** key

115. 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. `2` *b.* `1` *c.* `4` *d.* `3` *e.* none

116. If a shell token with a GLOB pattern contains two slashes, how many slashes can be in each matched pathname?
a. one or two *b.* exactly two *c.* one, two, or more
d. two or more *e.* zero, one, or two

117. What is true about this command line: `date >ls ; ls -ls ls >wc`
a. The **ls** command is executed more than once.
b. The file **wc** has one line in it.
c. The **wc** command counts the output of the **ls** command.
d. The **ls** command receives the output of **date** on standard input.
e. The shell finds and executes three different commands.

118. 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. `40` *b.* `160` *c.* `100` *d.* `60` *e.* `200`

119. Give the minimum number of directories in this pathname: **/a/b/c/d**
a. `5` *b.* `1` *c.* `2` *d.* `3` *e.* `4`

120. If **/etc/passwd** is a file name, which pathname always leads to the same file?
a. `/etc/passwd/../..` *b.* `/etc/passwd/./.`
c. `./../etc/passwd` *d.* `/etc/../../passwd`
e. `/./../etc/./passwd`

121. 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
```
a. `8` *b.* `4` *c.* `1`
d. no output *e.* `6`

122. In the output of **ls -a**, the two-character name **..** signifies what?
   a. The ROOT directory.
   b. A file or directory with double links.
   c. The current directory.
   d. It begins every name that is hidden.
   e. The parent directory.

123. How many lines are in file **out** after this command line:
```
echo hi >dog >out >cat
```
   a. **2** *b.* **4** *c.* **1** *d.* **3** *e.* **0**

124. Which pathname almost always leads to the same file named: **/etc/shadow**
   a. **././etc/shadow** *b.* **/./../etc/./shadow**
   c. **/etc/../../shadow** *d.* **/etc/shadow/../..**
   e. **/etc/shadow/./.**

125. 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 */.**
   a. 15 directory names
   b. ***/.**
   c. an error message because ***/.** does not exist
   d. 25 pathnames
   e. no output

126. 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.* **6 6** *c.* **8** *d.* **1 1** *e.* **4 4**

127. What is the output of this command line in an empty directory:
```
touch 1 .1 23 .23 456 ; echo [12]*
```
   a. **1 .1 23 .23 456**
   b. **[12]***
   c. **1 23**
   d. **1 .1 23 .23**
   e. an error message from **echo** saying **[ab]*** does not exist

128. In an empty directory, how many words are in file **out** after this command line:
```
echo hi >a ; ls >out
```
   a. **4** *b.* **3** *c.* **2** *d.* **0** *e.* **1**

129. 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. the directory **mt** now contains only a file named **bar**
   b. there is a second copy of the file **foo** in the file named **bar**
   c. the command fails because the path **../me/bar** does not exist
   d. the command fails because the path **./mt/../foo** does not exist
   e. the parent directory of **mt** now contains a file named **bar**

130. 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 command fails because the name **moo** does not exist
   c. an empty file named **moo** is created
   d. there is only the file named **moo** in the directory now
   e. the command fails because **bar** is not a directory

131. If I am in my HOME directory named **/home/me** and **x** is an empty sub-directory, what is true after this command line:
```
touch ./x/fil ; mv x/./fil x/../../me/./y
```
   a. the command fails because the path **x/../../me** does not exist
   b. the directory **x** is still empty
   c. the directory **x** now contains only a file named **y**
   d. the command fails because the path **x/./fil** does not exist
   e. there is a second copy of the file **fil** in the file named **y**

132. What would you see if you typed this command: **cat /foo**
   a. The contents of your subdirectory named **foo**
   b. The contents of your directory named **foo**
   c. The contents of the file **foo** located in your HOME directory
   d. The contents of the file **foo** located in the ROOT directory
   e. The contents of the file **foo** located in the parent directory

133. 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. **0** *b.* **30** *c.* **21** *d.* **50** *e.* **20**

134. 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 asks you to retype this invalid directory
   c. the shell issues an error message and does not change
   d. the shell issues a warning, but changes to the parent
   e. the shell current directory is still ROOT; no change

135. In an empty directory, what is the output on your screen after this command line:
```
date >.foo >.bar ; ls *
```
   a. an error message from **ls** saying ***** does not exist
   b. no output
   c. **.foo .bar**
   d. *****
   e. **. .. .foo .bar**

136. How many words are in the file **x** after this command line:
```
echo 1 2 >x ; echo 3 >x ; echo 4 >>x
```
   a. **4** *b.* **0** *c.* **2** *d.* **3** *e.* **1**

137. What command shows all the lines in file **cow** that contain the string **pig**?
   a. **grep pig >cow**
   b. **grep cow pig**
   c. **cat cow > grep pig**
   d. **grep pig <cow**
   e. **grep cat cow pig**

138. 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 **[TAB]** key.
   b. Type the first part of the command or file name and press the **[CTRL]-[D]** key.
   c. Type the first part of the command or file name and press the **[ALT]-[F1]** key.
   d. Type the first part of the command or file name and press the **[ALT]** key.
   e. Type the first part of the command or file name and press the **[CTRL]-[C]** key.

139. Which of the following commands will leave **file1** non-empty?
   a. **wc file1 > file1**
   b. **head file1 > file1**
   c. **sort file1 > file1**
   d. **tail file1 > file1**
   e. **cat file1 > file1**

140. 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***
   a. none *b.* **3** *c.* **2** *d.* **1** *e.* **4**

141. The option to **ls** that shows hidden names is:
   a. **-i** *b.* **-1** *c.* **-h** *d.* **-l** *e.* **-a**

142. If my current directory is **/etc**, which of these pathnames is equivalent to the file name **/etc/passwd**?
   a. **./etc/passwd**
   b. **/root/etc/passwd**
   c. **passwd/.**
   d. **./../../etc/./passwd**
   e. **../etc/passwd/.**

143. In a directory that contains only the file **foo**, what happens after this command:
```
mv foo bar
```
   a. there is only the file named **bar** in the directory now
   b. the command fails because the name **bar** does not exist
   c. an empty file named **bar** is created
   d. there is a copy of the file named **foo** in the file named **bar**
   e. the command fails because **bar** is not a directory

144. In an empty directory, what is the output on your screen after this command line:
```
ls 1>/dev/null nosuchfile
```
   a. **nosuchfile**
   b. **ls: 1>/dev/null nosuchfile: No such file or directory**
   c. **ls: /dev/null: No such file or directory**
   d. **ls: nosuchfile: No such file or directory**
   e. no output

145. The purpose of the **PS1** shell variable is:
   a. to list your suspended jobs
   b. to allow access to the ROOT directory
   c. to protect your HOME directory from access
   d. to find patterns inside a text file
   e. to set the shell prompt

146. In an empty directory, what is the output on your screen after this command line:
```
touch a b .1 .2 ; echo .??*
```
   a. **a b**
   b. **. .. .1 .2**
   c. an error message from **echo** saying **.??*** does not exist
   d. **. .. a b .1 .2**
   e. **.??***

147. 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. *****
   d. no output
   e. **ls: *: No such file or directory**

148. In the output of the command **ls -a**, a dot (period) that *begins* a name signifies what?
   a. The current directory.
   b. A name that is hidden.
   c. A name with an unprintable character.
   d. A current file.
   e. The parent directory.

149. 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**?
   a. **cp me/../../etc/passwd me/foo**
   b. **cp ../etc/passwd ../me/foo**
   c. **cp ./me/../etc/passwd ../home/me/foo**
   d. **cp ../home/me/../etc/passwd ./me/./foo**
   e. **cp ../../etc/passwd /me/foo**

150. What command can you use to delete an empty directory?
   a. **deldir** *b.* **delete** *c.* **rmdir**
   d. **erase** *e.* **mvdir**

151. Which command line tells you the recursive count of all pathnames under the current directory and all subdirectories?
   a. **wc ***
   b. **wc .**
   c. **wc "$PWD"**
   d. **ls | wc**
   e. **find | wc**

152. How many words are in file **out** after this command line:
```
echo one >two >three >out
```
a. **2** *b.* **3** *c.* **4** *d.* **0** *e.* **1**

153. 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/*
```
a. **cow/.AA cow/.A1 cow/.BB**
b. no output
c. **cow/.B.**
d. **cow/.AA cow/.A1 cow/.BB cow/.B.**
e. **cow/***

154. If my current directory is **/home**, which of these pathnames is equivalent to the pathname **/home/a/b/c**?
a. **../home/a/b/c** *b.* **../home/b/c**
c. **./home/a/b/c** *d.* **/a/b/c**
e. **../a/b/c**

155. In an empty directory, what is the output on your screen after this command line:
```
echo hi >a ; ls nosuchfile 2>/dev/null
```
a. **a**
b. **ls: nosuchfile: No such file or directory**
c. **nosuchfile**
d. no output
e. **ls: 2>/dev/null: No such file or directory**

156. If my current directory is **/home**, which of these pathnames is equivalent to the pathname **/home/a/b/c**?
a. **../a/b/c** *b.* **/a/b/c** *c.* **./a/b/c**
d. **./home/a/b/c** *e.* **../home/b/c**

157. To leave a shell and let the terminal window close, type:
a. **q** *b.* **exit** *c.* **[CTRL-C]**
d. **bye** *e.* **quit**

158. What is the output of this command line in an empty directory:
```
touch .a .b .c ; echo .??*
```
a. **.a .b .c**
b. **.??***
c. an error message from **echo** saying **.??*** does not exist
d. **. .. .a .b .c**
e. no output

159. Which of these command line will make **bar** contain all of the content of **f1** followed by all of the content of **f2**?
a. **mv f1 f2 >bar** *b.* **cat f1 f2 >bar**
c. **wc f1 f2 >bar** *d.* **echo f1 f2 >bar**
e. **cp f1 f2 >bar**

160. 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
```
a. **9** *b.* **8 8** *c.* **8** *d.* **2 2** *e.* **1**

161. If **/bin/bash** is a file name, which pathname always leads to the same file?
a. **/bin/bin/../bash** *b.* **./bin/bash**
c. **/./bin/./bash** *d.* **/bin/../bash**
e. **/bin/bash/.**

162. 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**?
a. **cp ../../bin/./ls /foo/xx**
b. **cp ./foo/../../bin/ls ./foo/./xx**
c. **cp ../home/./foo/../bin/ls foo/xx**
d. **cp ./../bin/ls ../foo/xx**
e. **cp ././foo/../bin/ls ../home/foo/xx**

163. Which command line displays only the non-hidden names in the current directory that contain the letter **a** (and no other names)?
a. **echo a*** *b.* **echo *a*** *c.* **echo *a**
d. **echo ?a?** *e.* **echo [a]**

164. In a manual page **SYNOPSIS** section, ellipsis (three dots) (**...**) mean:
a. a hidden directory *b.* something that is optional
c. the parent directory *d.* no special meaning
e. something that is repeated

165. 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**
a. the directory **mt** now contains a file named **foo**
b. the command fails because **mt/bar** is not a directory
c. the directory **mt** now contains a file named **bar**
d. the directory **mt** is still empty
e. the directory **bar** now contains a file named **foo**

166. Which command line below does *not* show any lines from inside the file **out**?
a. **tail out** *b.* **more out** *c.* **head out**
d. **wc out** *e.* **sort out**

167. 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. **30** *b.* **20** *c.* **60** *d.* **10** *e.* **0**

168. Which of these statements is true?
   a. To interrupt a Unix process from the keyboard, type **[CTRL]-[D]**.
   b. The **file** command creates a new, empty file in the current directory
   c. To erase an entire line of typing, type **[ALT]-[DELETE]**.
   d. Command **apropos** is an exact synonym for command **man**.
   e. To indicate End-of-File (no more input) to a program, type **[CTRL]-[D]**.

169. The option to **ls** that shows which names are directories is:
   a. **-d** *b.* **-a** *c.* **-1** *d.* **-i** *e.* **-l**

170. In an empty directory, how many words are in file **out** after this command line:
```
touch a ; ls >out
```
   a. **3** *b.* **1** *c.* **0** *d.* **4** *e.* **2**

171. In an empty directory, what is the output on your screen of this command line:
```
echo hi >foo >bar ; cat foo
```
   a. **hi >foo >bar**
   b. **hi**
   c. **hi >foo**
   d. no output
   e. **cat: foo: No such file or directory**

172. 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 ??**
   a. **4** *b.* **5** *c.* **2** *d.* **0** *e.* **1**

173. 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
```
   a. **96 96** *b.* **96** *c.* **04 04**
   d. **01 01** *e.* **98**

174. If my current directory is **/etc**, which of these pathnames is equivalent to the file name **/etc/passwd**?
   a. **passwd** *b.* **./etc/passwd**
   c. **../passwd** *d.* **../etc/passwd/.**
   e. **/passwd**

175. 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. the command fails because path **../me/bar** does not exist
   b. the directory **mt/..** now contains a file named **bar**
   c. the command fails because path **./mt/../foo** does not exist
   d. there is a second copy of the file **foo** in the file named **bar**
   e. the directory **mt** now contains only a file named **bar**

176. If my current directory is **/lib**, which of these pathnames is equivalent to the pathname **/lib/x/y**?
   a. **../x/y** *b.* **/x/y** *c.* **./lib/x/y**
   d. **../lib/x/y** *e.* **../lib/y**

177. If you type the command **cat**, which *CTRL* key will send an **EOF** and take you back to the command prompt?
   a. **^C** *b.* **^U** *c.* **^D** *d.* **^R** *e.* **^E**

178. In a directory containing one file named **dog**, what is the output on your screen after this command line: **2>/dev/null ls nosuchfile**
   a. **dog**
   b. **nosuchfile**
   c. no output
   d. **bash: 2>/dev/null: command not found**
   e. **ls: nosuchfile: No such file or directory**

179. 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**
   a. **3** *b.* **5** *c.* **3** followed by **2**
   d. **2** followed by **3** *e.* **2**

180. 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.* **7** *c.* **5** *d.* **8** *e.* **9**

181. In an empty directory, what is the output on your screen after this command line:
```
echo hi >a ; sort * 1>/dev/null
```
   a. **sort: *: No such file or directory**
   b. no output
   c. **sort: 1>/dev/null: No such file or directory**
   d. **a**
   e. **hi**

182. 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 -k nongraphic** at the shell
   c. type **man ls -nongraphic** at the shell
   d. type **man nongraphic | grep ls** at the shell
   e. type **man ls** at the shell, then **^F** (CTRL-F), then **nongraphic**

183. 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

184. 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. **70** *b.* **120** *c.* **50** *d.* **80** *e.* **0**

185. In an empty directory, how many lines are in file **foo** after this command line:
```
ls nosuchfile . .. 2>foo
```
a. **3** *b.* **4** *c.* **0** *d.* **1** *e.* **2**

186. What is the output on your screen of this command line:
```
echo pig >one ; echo bat | tail one
```
a. **pig** *b.* **pig** followed by **bat**
c. an error message *d.* **bat**
e. **bat** followed by **pig**

187. Which of the following statements is true about this command line:
```
<dir/c cat dir/d
```
a. The command **cat** sees two arguments.
b. The command **dir/c** sees only one argument
c. The command is always invalid.
d. The command **cat** sees only one argument.
e. The command **dir/c** sees two arguments.

188. 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. **20** *b.* **30** *c.* **50** *d.* **80** *e.* **0**

189. What is the absolute pathname of the Unix/Linux password (account) file?
a. **/var/passwd** *b.* **/usr/passwd** *c.* **/etc/passwd**
d. **/lib/passwd** *e.* **/bin/passwd**

190. In an empty directory, what is the output on your screen after this command line:
```
echo hi >a ; ls >wc -l
```
a. **2** *b.* **0** *c.* **1**
d. no output *e.* **a**

191. 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/*
```
a. **dir/.on dir/.tw dir/.th**
b. **dir/.f.**
c. no output
d. **dir/. dir/.. dir/.on dir/.tw dir/.th dir/.f.**
e. **dir/***

192. Which of the command lines below can generate a non-empty file?
a. **cat foo >foo** *b.* **sort foo >foo**
c. **tail foo >foo** *d.* **ls foo >foo**
e. **grep 'foo' foo >foo**

193. How many lines are in the file **out** after this command line:
```
date >f ; ls f >>f ; cat f f >out
```
a. **1** *b.* **4** *c.* **6** *d.* **2** *e.* **0**

194. If **/bin/bash** is a file name, which pathname always leads to the same file?
a. **./../bin/bash** *b.* **/bin/bin/../bash**
c. **/../bin/./bash** *d.* **/bin/../bash**
e. **/bin/bash/.**

195. In an empty directory, how many words are in file **foo** after this command line:
```
date >.bar >.out ; ls >foo
```
a. **3** *b.* **1** *c.* **0** *d.* **4** *e.* **2**

196. Which command line displays the contents of the Unix **passwd** file one page at a time?
a. **cat less | /etc/passwd** *b.* **less /etc/passwd**
c. **/etc/passwd cat less** *d.* **cat /etc/passwd less**
e. **/etc/passwd | less**

197. How many lines are in the file **out** after this command line:
```
echo hi >x ; echo ho >>x ; cat x x x >out
```
a. **3** *b.* **6** *c.* **2** *d.* **0** *e.* **1**

198. 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
```
a. **7** *b.* **5** *c.* **12** *d.* **0** *e.* **24**

199. 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. **100** *b.* **0** *c.* **60** *d.* **50** *e.* **30**

200. Which command below is the best way to find a line containing an asterisk (*****) in the file named **foo**?
a. **fgrep '*' foo** *b.* **fgrep foo "*"**
c. **fgrep ./* foo** *d.* **fgrep foo [*]**
e. **fgrep * foo**

201. 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.* **4** *d.* **3** *e.* **6**

202. What is the Unix user name for the Super-User account?
a. **superuser** *b.* **administrator**
c. **alterego** *d.* **master**
e. **root**

203. What is the output of this command line in an empty directory:
```
touch a .a bc .bc def ; echo [ab]*
```
a. no output
b. `a .a bc .bc`
c. `a bc`
d. `[ab]*`
e. an error message from `echo` saying `[ab]*` does not exist

204. What is the output on your screen of this command line:
```
echo bat >pig ; echo one | tail pig
```
a. `bat` *b.* an error message
c. `one` *d.* `one` followed by `bat`
e. `bat` followed by `one`

205. What command displays the sizes of files in the current directory?
a. `ps -l` *b.* `ps -s` *c.* `ls -p`
d. `cat -s` *e.* `ls -l`

206. Which command line displays only the non-hidden names in the current directory that contain the case-insensitive word `me` (and no other names)?
a. `echo *[MmEe]*` *b.* `echo ?[MmEe]?`
c. `echo *[me]*` *d.* `echo *[Mm][Ee]*`
e. `echo *(M,m,E,e)*`

207. Which pathname almost always leads to the same file named: `/etc/passwd`
a. `/etc/passwd/.` *b.* `/etc/etc/../passwd`
c. `./etc/passwd` *d.* `/./etc/./passwd`
e. `/etc/../passwd`

208. What can you do to get back (redo) the last command you typed?
a. Use the "`PageUp`" key. *b.* Use the "`UpArrow`" key.
c. Type `[ALT]-[F2]` *d.* Type `[CTRL]-[ALT]-[UP]`
e. Type `[CTRL]-[BACKSPACE]`

209. 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 me/../../etc/passwd me/foo`
c. `cp ../../etc/passwd /me/foo`
d. `cp ../etc/passwd ../me/foo`
e. `cp ./me/../etc/passwd ../home/me/foo`

210. Which command line below outputs only lines 11-15 of the Unix password file?
a. `tail -10 /etc/passwd | head -15 /etc/passwd`
b. `head -10 /etc/passwd | tail -15 /etc/passwd`
c. `head -15 /etc/passwd | tail -5`
d. `tail -15 /etc/passwd | head -10`
e. `head -15 /etc/passwd | tail -5 /etc/passwd`

211. Which command line does *not* show any lines from inside the file `bat`?
a. `less bat` *b.* `sort bat` *c.* `tail bat`
d. `ls bat` *e.* `head bat`

212. If `cow` is a sub-directory that contains only the file `dog`, what happens after this command: `mv cow/dog cow/./../cat`
a. the command fails because the name `cat` does not exist
b. there is a second copy of the file `dog` in the file named `cat`
c. the command fails because the name `cow/./../cat` does not exist
d. the directory `cow` now contains only a file named `cat`
e. the directory `cow` is now empty

213. 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
```
a. the command fails because the path `../me/cat` does not exist
b. the command fails because the path `sub/../fil` does not exist
c. the directory `sub` now contains only a file named `cat`
d. there is a second copy of the file `fil` in the file named `cat`
e. the directory `sub/..` now has a file named `cat` in it

214. In an empty directory, how many words are in file `cow` after this command line:
```
touch dog dog cat ; ls >cow
```
a. `0` *b.* `1` *c.* `3` *d.* `2` *e.* `4`

215. Which of these commands always returns you to your account HOME directory?
a. `cd /home/..` *b.* `cd ..` *c.* `cd`
d. `cd /home` *e.* `cd home`

216. 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`
a. `0` *b.* `2` *c.* `5`
d. no output *e.* `3`

217. 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. `0` *b.* `3` *c.* `8` *d.* `5` *e.* `2`

218. 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 ./me/../etc/passwd ../home/me/foo`
e. `cp ../etc/passwd ../me/foo`

219. 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. **5** *b.* **7** *c.* **8** *d.* **6** *e.* **9**

220. What command can you use to delete a directory that isn't empty?

a. **deldir -r dir** *b.* **rmdir -r dir**
c. **deltree -r dir** *d.* **rm -r dir**
e. **del -r dir**

221. What is the result of this exact command line: **echo /foo bar**

a. all the files under directory **/foo** with the name **bar** will be displayed
b. file **/foo** will be copied to **bar**
c. the contents of the files **/foo** and **bar** will be displayed
d. the names of the pathnames **/foo** and **bar** will be displayed
e. the two text strings **/foo** and **bar** will be displayed

222. 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. **dir/.aa dir/.ab**
b. **dir/.a?**
c. no output
d. **dir/???**
e. **dir/.aa dir/.ab dir/.a? dir/.a***

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

```
echo hi >hi ; head hi >hi ; wc hi
```

a. **2 2 4 hi** *b.* **1 1 3 hi** *c.* no output
d. **0 0 0 hi** *e.* **1 1 2 hi**

224. If **ian** is a sub-directory that contains only the file **foo**, what happens after this command: **mv ./ian/./foo ./ian/../bar**

a. the command fails because the name **./ian/./foo** does not exist
b. the directory **ian** is now empty
c. the command fails because the name **./ian/../bar** does not exist
d. there is a second copy of the file **foo** in the file named **bar**
e. the directory **ian** now contains only a file named **bar**

225. If I am in my HOME directory named **/home/myhome** and **sub** is an empty sub-directory, what is true after this command line:

```
touch ./fil ; mv sub/../fil ../myhome/cat
```

a. the directory **sub/..** now has a file named **cat** in it
b. the command fails because the path **../myhome/cat** does not exist
c. the command fails because the path **sub/../fil** does not exist
d. the directory **sub** now contains only a file named **cat**
e. there is a second copy of the file **fil** in the file named **cat**

226. 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. **30** *b.* **160** *c.* **80** *d.* **0** *e.* **50**

227. In which section of the manual do you find standard commands?

a. 1 *b.* 8 *c.* 2 *d.* 4 *e.* 3

228. **Did you read all the words of the test instructions on page one?**

a. **Jes** *(Yes - Esperanto)* *b.* **Taip** *(Yes - Lithuanian)*
c. **Tak** *(Yes - Polish)* *d.* **Sim** *(Yes - Portuguese)*
e. **Igen** *(Yes - Hungarian)*