PRINT Name: _____ **LAB Section:** ☐☐☐

Test Version: ____ **One-Answer Multiple Choice** **50 Questions – 10 of 10%**

☞ 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.

1. *[10/64]* If **a=123** and **b=456** then what is the output of the following sequence of
   bash commands: **if [$a = $b] ; then echo $a ; fi**
   a. **test: a=123: integer expression expected**
   b. **123**
   c. **test: $a: string expression expected**
   d. **bash: [123: command not found**
   e. no output

2. *[25/64]* Which of the following programs uses file globbing expressions as well as
   regular expressions for matching:
   a. **sed**   *b.* **grep**   *c.* **vi**   *d.* **awk**   *e.* **find**

3. *[26/64]* If **foo** is a script containing the line **TERM=new ; export TERM**,
   what is the output of the following sequence of **bash** commands that use **foo**:
       TERM=bar ; ./foo ; echo '$TERM'
   a. **$TERM**   *b.* **foo**   *c.* **TERM**   *d.* **new**   *e.* **bar**

4. *[27/63]* What is the output on your screen of the following sequence of commands:
       i=00 ; [$i -eq 0] ; echo $?
   a. **test: $i: integer expression expected**
   b. **1**
   c. **0**
   d. no output
   e. the number 0 or 1 followed by another 0 or 1 on a new line

5. *[29/64]* If the file **foo** in the current directory contains just two lines **dbd**, and
   123, what is the output of the following command: **grep '[:alnum:]' foo**
   a. **123**   *b.* both lines
   c. **dbd**   *d.* **foo**
   e. no output or an error message

6. *[31/64]* Who is the owner of file **bar** after you successfully execute this sequence
   of commands in your home directory:
       touch foo ; ln foo one ; ln one two ; ln two bar
   a. you own the file **bar**
   b. the file is owned by **home**
   c. the file is owned by **root**
   d. you cannot execute the given commands; no file will be created
   e. the file is owned by **passwd**

7. *[32/63]* What is the output of this sequence of three shell commands:
       umask 732 ; touch newfile ; ls -l newfile
   a. **-rw-rw--w- 1 me me 0 Oct 1 1:12 newfile**
   b. **-rwxrw--w- 1 me me 0 Oct 1 1:12 newfile**
   c. **----r---wx 1 me me 0 Oct 1 1:12 newfile**
   d. **------xr-x 1 me me 0 Oct 1 1:12 newfile**
   e. **----r--r-- 1 me me 0 Oct 1 1:12 newfile**

8. *[32/64]* If the current directory contains files **abc**, **bbc**, **cbc**, and **bbc** contains
   just the line **dbd**, what is the output of the following command:
       grep 'bb*$' bbc
   a. no output   *b.* **bbc**   *c.* an error message
   d. **cbc**   *e.* **dbd**

9. *[34/64]* If **./a/b** were a readable empty file, what would be the **bash** shell
   output of this two command sequence:
       PATH=/etc/:/usr:/var ; /bin/cat ./a/b
   a. no output
   b. **bash: cat: command not found**
   c. **bash: ls: command not found**
   d. **/bin/cat: ./a/b: No such file or directory**
   e. **bash: /bin/cat: command not found**

10. *[35/64]* If my current directory is **/bin**, which of these pathnames is equivalent to
    the file name **/bin/ls**?
    a. **/bin/../bin/./ls**   *b.* **./bin/ls**
    c. **ls/.**   *d.* **../bin/ls/.**
    e. **/root/bin/ls**

11. *[36/64]* If **dog** is an executable script containing the line: **umask 0022**
    what is the output of the following sequence of commands:
        umask 0077 ; ./dog ; umask
    a. **0079**   *b.* **0022**   *c.* **0077**
    d. no output on screen   *e.* **0075**

12. *[36/64]* Which line below puts the count of the number of lines in the password file into the variable **foo**?
    a. `foo=$( wc -l /etc/passwd | awk "print $1" )`
    b. `foo=$( awk -F: /etc/passwd | wc -l )`
    c. `foo=$( cat -c /etc/passwd )`
    d. `foo=$( wc /etc/passwd | awk echo $1 )`
    e. `foo=$( wc -l </etc/passwd )`

13. *[37/64]* If **bar** is an executable script containing the line **cow=dog** then what is the **bash** output of this sequence of three commands:
    `cow=cat ; ./bar ; echo "the '$cow' ate"`
    a. `the 'dog' ate`   *b.* `the '$cow' ate`
    c. `the 'cat' ate`   *d.* `the $cow ate`
    e. `the 'cow' ate`

14. *[38/64]* If the file **foo** in the current directory contains just two lines **dbd** and **123**, what is the output of the following command: `grep '[b1]$' foo`
    a. **dbd**   *b.* an error message   *c.* **123**
    d. no output   *e.* **foo**

15. *[39/64]* What is the correct syntax to redirect both standard output and standard error into the same output file?
    a. `command >out 2>&1`   *b.* `command 2>out >out`
    c. `command >out 2>1`   *d.* `command 2>1 >out`
    e. `command 2>&1 >out`

16. *[39/64]* If the current directory contains files **abc**, **bbc**, **cbc**, and **bbc** contains just the line **dbd**, what is the output of the following command:
    `grep "^bb*" bbc`
    a. **bbc**   *b.* **dbd**   *c.* **cbc**
    d. no output   *e.* an error message

17. *[40/63]* If the file **foo** in the current directory contains just two lines **dbd** and **a123**, what is the output of the following command:
    `grep '^[[:alpha:]]' foo`
    a. two lines **dbd** and **a123**   *b.* **a123**
    c. an error message   *d.* no output
    e. **dbd**

18. *[41/64]* Which of the following regular expressions would match lines that contain exactly one character of any kind?
    a. `^.$`   *b.* `^*$`   *c.* `^\?$`   *d.* `^.*$`   *e.* `^?$`

19. *[42/63]* What is the output on your screen of the following sequence of commands:
    `x=pig ; y=cow ; [ -z $x ] ; echo $?`
    a. the number 0 or 1 followed by another 0 or 1 on a new line
    b. **0**
    c. **1**
    d. no output
    e. `test: $x: integer expression expected`

20. *[43/64]* If the current directory contains files **abc**, **bbc**, **cbc**, and **bbc** contains just the line **bbb**, what is the output of the following command: `grep bb* bbc`
    a. **bbc**   *b.* **cbc**   *c.* no output
    d. an error message   *e.* **dbd**

21. *[44/64]* In an empty directory, what appears on your screen after this **bash** command line? `ls 1>/dev/null nosuchfile`
    a. `ls: nosuchfile: No such file or directory`
    b. `ls: 1>/dev/null nosuchfile: No such file or directory`
    c. no output
    d. `nosuchfile`
    e. `ls: /dev/null: No such file or directory`

22. *[44/64]* What is the output on your screen of the following sequence of commands:
    `a=4 ; b=4 ; [ $a -le $b ] ; echo $?`
    a. the number 1 or 0 followed by another 1 or 0 on a new line
    b. no output
    c. **0**
    d. `test: $a: integer expression expected`
    e. **1**

23. *[44/64]* What minimal permissions must you have on a directory to be able to execute successfully the command **ls .** from *inside* the directory?
    a. `-wx`   *b.* `rw-`   *c.* `r--`   *d.* `r-x`   *e.* `--x`

24. *[46/64]* If **/tmp/foo** is a file name, which of the following pathnames always leads to the same file?
    a. `./tmp/foo`   *b.* `/tmp/../tmp/foo`
    c. `/tmp/../../foo`   *d.* `/tmp/foo/.`
    e. `/tmp/foo/../..`

25. *[46/64]* What is the output of the following sequence of **bash** commands:
    `a=1 ; b=2 ; test $a -le $b ; echo $?`
    a. the number 1 or 0 followed by another 1 or 0 on a new line
    b. **1**
    c. **0**
    d. `test: $a: integer expression expected`
    e. no output

26. *[48/64]* What command shows all the lines in file **foo** that contain the string **bar**?
   a. `cat foo > grep bar`　　　　*b.* `grep foo bar`
   c. `grep bar >foo`　　　　　　*d.* `grep -E '(bar)' foo`
   e. `grep cat foo bar`

27. *[49/64]* What is the output on your screen of the following command sequence:
   　　`i=04; test $i = 4 ; echo $?`
   a. the number 0 or 1 followed by another 0 or 1 on a new line
   b. `1`
   c. `0`
   d. no output
   e. `test: $i: integer expression expected`

28. *[49/63]* Which of these statements is true?
   a. Typing **./script** and **bash script** always give identical results.
   b. If **./q** is an empty directory, **echo ./q/.*** produces an error message.
   c. Double quotes will stop shell glob (wildcard) patterns from expanding.
   d. The **ls dir** command looks up the directory argument **dir** in your **$PATH**.
   e. If **./p** is an empty directory, **ls ./p/.*** produces an error message.

29. *[50/64]* Which **bash** command sequence correctly compares the two numbers and prints **OK**?
   a. `if [ 3 -le 4 ] ; then echo OK ; fi`
   b. `if [ ! 3 -lt 4 ] ; then echo OK ; fi`
   c. `if [ 3 < 4 ] ; then echo OK ; fi`
   d. `if ( 4 < 4 ) ; then echo OK ; fi`
   e. `if ( ! 3 < 4 ) ; then echo OK ; fi`

30. *[50/64]* Which of the following regular expressions would match lines that contain one or more alphanumeric characters only?
   a. `^[[:alnum:]]*$`
   b. `[a-z0-9][a-z0-9]*`
   c. `[[:alnum:]]*`
   d. `^[[:alnum:]][[:alnum:]]*$`
   e. `[[:alnum:]][[:alnum:]]*`

31. *[51/64]* Which command below removes *only* this five-character file name containing a special character (and no others): ***test**
   a. `rm '*test'`　　　*b.* `rm \\*test`　　　*c.* `rm ./*test`
   d. `rm *test`　　　*e.* `rm ./\\*test`

32. *[51/64]* If the file **foo** in the current directory contains just two lines **dbd** and **123**, what is the output of the following command: **grep '[[:alpha:]]' foo**
   a. `123`　　　　*b.* no output　　　*c.* an error message
   d. `foo`　　　　*e.* `dbd`

33. *[52/64]* In the output of the command **ls -a**, a dot that begins a name signifies what?
   a. A name that is hidden.
   b. The current directory.
   c. A current file.
   d. A name with an unprintable character.
   e. The parent directory.

34. *[52/64]* What is the output of this successful command line?
   　　`cd /home/myhome ; mkdir foo ; mkdir bar ; cd`
   a. `/home/myhome/bar`　　　*b.* `/home/myhome/foo`
   c. `/bar`　　　　　　　　　*d.* `/home/myhome`
   e. no output

35. *[54/64]* A shell script named **bar** is executed as follows:
   　　`./bar "a b" "c d e" f`
   Inside the script is the line: `echo "$1"`
   What is the output on your screen from this line?
   a. `"f"`　　　*b.* `c d e`　　　*c.* `a b`　　　*d.* `$3`　　　*e.* `f`

36. *[54/64]* What is in file **cow** after running this **bash** shell command line?
   　　`echo two >cow three`
   a. `echo two`　　　　　　*b.* `two cow three`
   c. `two three`　　　　　　*d.* no output (empty file)
   e. `three`

37. *[54/64]* Which of the following is true, given this long directory listing from **ls**:
   　　`755 drwxr-x--x 256 tgk user 1024 May 30 12:35 dir`
   a. The number 256 is the octal permissions of this directory.
   b. The number 1024 is the count of links (names) this directory has.
   c. The number 256 is the inode number of this directory.
   d. The number 755 is the count of links (names) this directory has.
   e. The number 1024 is the size of this directory.

38. *[54/64]* Which of these command lines will make file **cow** contain all of the content of file **one** followed by all of the content of file **two**?
   a. `cp  one >cow  two >cow`　　　*b.* `echo one two >cow`
   c. `cat one two >cow`　　　　　*d.* `mv one two >cow`
   e. `cp one two >cow`

39. *[54/64]* Which of these commands makes a file owned by me, also writable by me?
   a. `umask 777 myfile`　　　　*b.* `chmod x=u ./myfile`
   c. `chmod u+x ./myfile`　　　*d.* `chmod u+w myfile`
   e. `umask 111 myfile`

40. *[55/64]* If **cow** is a sub-directory that contains only the file **pig**, what happens after this command: **mv cow/././pig cow/cat**
    a. the command fails because the name **cat** does not exist
    b. the directory **cow** is now empty
    c. the directory **cow** now contains only a file named **cat**
    d. there is a second copy of the file **pig** in the file named **cat**
    e. the command fails because the name **cow/././pig** does not exist

41. *[55/64]* Which of these statements is true?
    a. You can make a hard link to a directory.
    b. You only need "**r--**" permission on directory "**foo**" for "**ls -l foo**" to work.
    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. If you give me write permission on a file owned by you, I can then use **chmod** to change its permissions.

42. *[56/64]* Given the following **bash** shell command line:
    ```
    read  var1  var2  var3
    ```
    which user keyboard input line below will assign the text **22** to the shell variable named **var3**?
    a. **xx=11 zz=22 yy=33**   b. **11   22   33**
    c. **11;22;33**   d. **22   33   11**
    e. **11   33   22**

43. *[56/64]* Which of the following regular expressions would match lines that contain no white space?
    a. **^[[:space:]]*$**   b. **^[^[:space:]]*$**
    c. **[^[:space:]]*$**   d. **[^:space:]***
    e. **[^[:space:]]***

44. *[57/64]* What is true about this output from **ls -il foo bar**
    ```
    24 -rwxr----- 3 root root 2 Jul 31 12:33 foo
    24 -rwxr----- 3 root root 2 Jul 31 12:33 bar
    ```
    a. **foo** and **bar** are names for different files
    b. this output is not possible
    c. **foo** and **bar** are names for the same file
    d. **foo** and **bar** are two of five names for this file
    e. **foo** and **bar** each have two names (four names total)

45. *[58/64]* Which command sequence creates a directory into which anyone can put a file, but in which nobody can see the names of the files that are there?
    a. **mkdir protected ; cd protected ; chmod go-x .**
    b. **mkdir protected ; chmod 777 .**
    c. **mkdir protected ; chmod 333 protected**
    d. **mkdir protected ; cd protected ; chmod go+wx .**
    e. **mkdir protected ; chmod 777 protected**

46. *[59/64]* In an empty directory, how many files are created by this command:
    ```
    touch "b c"  '  '  d
    ```
    a. **4**   b. **7**   c. **3**   d. **6**   e. **5**

47. *[60/64]* What is the result of this exact command line:
    ```
    echo /etc/passwd ls
    ```
    a. the contents of the files **/etc/passwd** and **hello** will be displayed
    b. a list of file names matching **/etc/passwd** and **hello** will be displayed
    c. all the files under **/etc/passwd** with the name **hello** will be displayed
    d. file **/etc/passwd** will be copied to **hello**; the names will be displayed as well
    e. the text **/etc/passwd** and **ls** will be displayed

48. *[61/64]* What would you type to change the permissions on a file to **rwxr--r--**?
    a. **chmod 211 file**   b. **chmod 244 file**
    c. **chmod 344 file**   d. **chmod 744 file**
    e. **chmod 755 file**

49. *[61/64]* Which command line would show the inode number of a file?
    a. **cat -la file**   b. **ps -la file**   c. **cat -ia file**
    d. **ls -la file**   e. **ls -ia file**

50. *[63/64]* What command can you use to delete a directory?
    a. **delete**   b. **rmdir**   c. **deldir**
    d. **del**   e. **erase**