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

One-Answer Multiple Choice   45 Questions   **Weight 15%**

☞ 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.
☞ **PRINT** 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.
☞ Enter your NAME, Student Number, and Answers. Fill in the bubbles with pencil, no pen.
☞ Leave the last question about reading all these test instructions blank. No answer. **Neniu**

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191. Answer **191** is ⬤⬤⬤⬤⬤ **E**   Your **Test Version** is:
192. Answer **192** is ⬤⬤⬤⬤⬤ **E**
193. Answer **193** is **A**⬤⬤⬤⬤   **E   E   A   A   A   A**
194. Answer **194** is **A**⬤⬤⬤⬤   **Fill in the bubbles** for the above six letters as
195. Answer **195** is **A**⬤⬤⬤⬤   six answers **191** through **196** on the back side
196. Answer **196** is **A**⬤⬤⬤⬤   of the Scantron form, in the lower-right-most
                                           answer column.

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1. If I am in directory **/tmp** and **dir** is an empty sub-directory, what is true after this command line:
    mkdir bar ; touch foo ; mv foo bar/dir

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

2. 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. **8**   b. **5**   c. **12**   d. **7**   e. **0**

3. How do I search for the string **text** in the paginated output from the **man** or **less** commands on my screen?

    a. **help text**   b. **@text**   c. **find text**
    d. **grep text**   e. **/text**

4. If files occupy one disk block, how many disk blocks will the system free up if I remove these four file names:
    ```
    111 -rw-r--r-- 1 me me 1 Jan 1 1:00 a
    222 -rw-r--r-- 1 me me 1 Jan 1 1:00 b
    333 -rw-r--r-- 1 me me 1 Jan 1 1:00 c
    444 -rw-r--r-- 2 me me 1 Jan 1 1:00 d
    ```
    a. **2**   b. **4**   c. **0**   d. **3**   e. **1**

5. What is the output on your screen of this unquoted command line:
    mkdir a ; touch b a/b a/bb ; find a -name b*

    a. **a/b**   b. no output   c. **a/b a/bb**
    d. **b a/b a/bb**   e. **b bb**

6. Which pathname almost always leads to the same file named: **/etc/passwd**

    a. **/etc/../passwd**   b. **/./././etc/passwd**
    c. **/etc/./etc/../passwd**   d. **/./etc/./passwd/.**
    e. **./etc/passwd**

7. What is the output of this in an empty directory:
    mkdir abc cba ab a ; echo [abc]

    a. **a ab abc**
    b. an error message from **echo** saying **[abc]** does not exist
    c. **abc cba**
    d. **a**
    e. **abc**

8. If a shell GLOB pattern fails to match anything, the shell:

    a. gives a warning message but continues
    b. passes the pattern unchanged to the command
    c. returns the closest match to the pattern
    d. gives an error message and does not execute
    e. removes the pattern and passes nothing

9. Dereference the following symlink **xyz** into its equivalent absolute path:
    ln -s ../../a/../foo /tmp/a/b/xyz

    a. **/tmp/a/b/xyz**   b. **/tmp/a/foo**
    c. **/tmp/b/foo**   d. **/tmp/foo**
    e. **/tmp/b/xyz**

10. What does this command print: `awk '{print $NF}'`
   - *a.* the number of fields
   - *b.* field number **N** followed by field number **F**
   - *c.* the shell variable **$NF**
   - *d.* the first field
   - *e.* the last field

11. Which command line below shows only lines **5−10** of file **foo**?
   - *a.* `tail −n 10 foo | head −n 6`
   - *b.* `tail −n 15 foo | head −n 5`
   - *c.* `head −n 6 foo | tail −n 10`
   - *d.* `head −n 10 foo | tail −n 5`
   - *e.* `head −n 10 foo | tail −n 6`

12. In **/var/lib** using **ls −l** shows a symbolic link **bar −> ../abc/foo**
   then dereference the absolute path of **bar** with no symbolic links:
   - *a.* `/var/bar/../abc/foo`
   - *b.* `/var/abc/foo`
   - *c.* `/var/lib/abc/foo`
   - *d.* `/var/lib/abc/foo/bar`
   - *e.* `/var/lib/bar/../abc/foo`

13. How many arguments are passed to the command by the shell:
   `echo It's not hard, it's just logical.`
   - *a.* **4**   *b.* **6**   *c.* **5**   *d.* **3**   *e.* **7**

14. How do you execute the program **bar** in the current directory?
   - *a.* `./bar`   *b.* `/bar`   *c.* `$HOME/bar`
   - *d.* `../bar`   *e.* `bar/`

15. Dereference the following symlink **xyz** into its equivalent absolute path:
   `ln −s /bin/bash /tmp/a/b/xyz`
   - *a.* `/bin/a/bash`   *b.* `/tmp/bash`
   - *c.* `/bin/bash`   *d.* `/bin/a/b/xyz`
   - *e.* `/bin/b/xyz`

16. If **/bin/foo** is a program that outputs **mom** and **/usr/bin/foo** is a
   program that outputs **dad** what would be the output on your screen of this
   three command sequence:
   `PATH=/bin/foo:/usr/bin/foo:/usr ; cd /bin ; ./foo`
   - *a.* **dad**
   - *b.* **dad** followed by **mom**
   - *c.* **mom**
   - *d.* `bash: ./foo: no such file or directory`
   - *e.* **mom** followed by **dad**

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

18. What is true about this output from `ls −il foo bar`
   ```
   15 −rwxrwxrwx 2 bin bin 3 Jul 31 12:33 foo
   15 −rwxrwxrwx 2 bin bin 3 Jul 31 12:33 bar
   ```
   - *a.* **foo** and **bar** are names for the same file
   - *b.* **foo** and **bar** are names for different files
   - *c.* **foo** and **bar** each have three names (six names total)
   - *d.* **foo** and **bar** are two of three names for the same file
   - *e.* this output is not possible

19. File **a** occupies one disk block. How many disk blocks are in use after this
   sequence of commands:
   `cp a b ; ln b c ; cp c d ; cp a c ; rm a b`
   - *a.* **3**   *b.* **2**   *c.* **1**   *d.* **5**   *e.* **4**

20. If I am in directory **/etc** and **d** is an empty sub-directory, what is true after
   this command line:
   `touch d/foo ; mkdir d/x ; cp d/foo ./d/../x`
   - *a.* there is a second copy of the file **foo** in file **/etc/x**
   - *b.* there is a second copy of the file **foo** in directory **d**
   - *c.* the directory **d** is now empty
   - *d.* the directory **d** now contains only a file named **x**
   - *e.* the command fails because the name **d/foo** does not exist

21. File **a** occupies one disk block. How many disk blocks are in use after this
   sequence of commands: `cp a b ; ln b c ; cp c d ; cp a c`
   - *a.* **2**   *b.* **3**   *c.* **4**   *d.* **1**   *e.* **0**

22. In an empty directory, what is in file **foo** after this:
    echo hi >foo ; ls bar >foo

    a. nothing (empty file)   *b.* **ls: cannot access bar**
    c. **bar**   *d.* **foo**
    e. **hi**

23. In an empty directory, how many words are in file **c** after this:
    echo Don't "redirect". >a Can't do. >b ; ls >c

    a. **2**   *b.* **4**   *c.* **1**   *d.* **3**   *e.* **0**

24. Given this long listing of a directory:
    drwxr-xr-x 448 me me 296 Dec 4 9:12 dir
    How many subdirectories lie immediately under **dir**?

    a. **446**   *b.* **296**
    c. **448**   *d.* **294**
    e. not enough information given

25. Which line allows the shell to find the **assignment07check** command?

    a. **PATH=$PATH:assignment07check**
    b. **PATH=$PATH:~idallen/cst8207/17w/assignment07**
    c. **$PATH=PATH:~idallen/cst8207/17w/assignment07**
    d. **PATH=which assignment07check**
    e. **PATH=whereis assignment07check**

26. If files occupy one disk block, how many disk blocks will the system free up if
    I remove these four file names:
    111 -rw-r--r-- 1 me me 1 Jan 1 1:00 a
    222 -rw-r--r-- 2 me me 1 Jan 1 1:00 b
    222 -rw-r--r-- 2 me me 1 Jan 1 1:00 c
    333 -rw-r--r-- 3 me me 1 Jan 1 1:00 d

    a. **0**   *b.* **4**   *c.* **2**   *d.* **1**   *e.* **3**

27. File **a** contains 2 lines. File **b** contains 3 lines. How many lines are output on
    your screen by this: **cat b | echo a**

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

28. If my current directory is **/etc/vim**, which of these pathnames is equivalent
    to the file name **/etc/passwd**?

    a. **../passwd**   *b.* **/etc/vim/./passwd**
    c. **./passwd**   *d.* **./etc/passwd**
    e. **../etc/passwd**

29. If files occupy one disk block, how many disk blocks will the system free up if
    I remove these four file names:
    111 -rw-r--r-- 3 me me 1 Jan 1 1:00 a
    111 -rw-r--r-- 3 me me 1 Jan 1 1:00 b
    222 -rw-r--r-- 3 me me 1 Jan 1 1:00 c
    222 -rw-r--r-- 3 me me 1 Jan 1 1:00 d

    a. **2**   *b.* **0**   *c.* **1**   *d.* **4**   *e.* **3**

30. Create a symbolic link under **/etc** named **bar** that has target **foo**:

    a. **ln -s 'foo' '/etc/bar'**
    b. **ln -s /etc/bar '/etc/foo'**
    c. **ln -s /etc/bar 'foo'**
    d. **ln -s '/etc/foo' /etc/bar**
    e. **ln -s bar/foo /etc**

31. File **a** contains 2 lines. File **b** contains 3 lines. How many lines are output on
    your screen by this command line: **cat b | touch a**

    a. no output   *b.* **5**   *c.* **1**
    d. **2**   *e.* **3**

32. Which command displays pathnames starting with **foo**?

    a. **echo foo&**   *b.* **echo foo***   *c.* **find foo%**
    d. **which foo@**   *e.* **cat foo+**

33. If **/bin/foo** is a program that outputs **mom** and **/usr/bin/foo** is a
    program that outputs **dad** what would be the output on your screen of this
    three command sequence:
    PATH=/bin/foo:/usr/bin/foo:/usr ; cd /bin ; foo

    a. **dad** followed by **mom**
    b. **mom**
    c. **mom** followed by **dad**
    d. **dad**
    e. **bash: foo: command not found**

34. What is the link count of directory **x** after this set of successful commands?
    mkdir x ; mkdir x/a x/b x/a/b x/b/c x/b/d

    a. **3**   *b.* **6**   *c.* **2**   *d.* **4**   *e.* **5**

35. In **/var/lib** using **ls −l** shows a symbolic link **foo −> /bin/cat** then dereference the absolute path of **foo** with no symbolic links:

   a. **/bin/cat**   *b.* **/foo/bin/cat**
   c. **/var/lib/foo/bin/cat**   *d.* **/var/lib/bin/cat**
   e. **/var/lib/bin/cat/foo**

36. If files occupy one disk block, how many disk blocks will the system free up if I remove these four file names:
   ```
   111 -rw-r--r-- 2 me me 1 Jan 1 1:00 a
   111 -rw-r--r-- 2 me me 1 Jan 1 1:00 b
   222 -rw-r--r-- 3 me me 1 Jan 1 1:00 c
   222 -rw-r--r-- 3 me me 1 Jan 1 1:00 d
   ```
   a. **0**   *b.* **3**   *c.* **2**   *d.* **4**   *e.* **1**

37. How many files are touched?
   ```
   touch " 1 '2 3' 4 "5 6 ' 7 "8 '
   ```
   a. **6**   *b.* **5**   *c.* **2**   *d.* **4**   *e.* **3**

38. If files occupy one disk block, how many disk blocks will the system free up if I remove these four file names:
   ```
   111 -rw-r--r-- 1 me me 1 Jan 1 1:00 a
   222 -rw-r--r-- 2 me me 1 Jan 1 1:00 b
   444 -rw-r--r-- 2 me me 1 Jan 1 1:00 c
   444 -rw-r--r-- 2 me me 1 Jan 1 1:00 d
   ```
   a. **0**   *b.* **2**   *c.* **1**   *d.* **3**   *e.* **4**

39. Which command line outputs the one-line pathname **/bin/date**?

   a. **cd /bin ; echo date**   *b.* **cat /bin/date**
   c. **cd /bin ; ls date**   *d.* **touch /bin/date**
   e. **which date**

40. If files occupy one disk block, how many disk blocks will the system free up if I remove these four file names:
   ```
   111 -rw-r--r-- 1 me me 1 Jan 1 1:00 a
   222 -rw-r--r-- 2 me me 1 Jan 1 1:00 b
   333 -rw-r--r-- 2 me me 1 Jan 1 1:00 c
   444 -rw-r--r-- 1 me me 1 Jan 1 1:00 d
   ```
   a. **1**   *b.* **0**   *c.* **4**   *d.* **3**   *e.* **2**

41. What is in file **c** after this command line:
   echo xx >a ; ln a b ; echo yy >b ; ln a c ; rm a b

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

42. What is the output of this in an empty directory:
   date >.abc ; touch .dog ; echo .?*

   a. an error message from **echo** saying **.?*** does not exist
   b. **.dog**
   c. **.?***
   d. **..   .abc   .dog**
   e. **.abc   .dog**

43. 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 e c ; sort a b >c

   a. **3**   *b.* **0**   *c.* **5**   *d.* **2**   *e.* **4**

44. In an empty directory, how many words are in file **c** after this:
   echo a >x ; echo b >y ; mv z a >z ; ls >c

   a. **2**   *b.* **4**   *c.* **0**   *d.* **1**   *e.* **3**

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

   a. **Neniu** *(No - Esperanto)*   *b.* **Ne** *(No - Lithuanian)*
   c. **Nie** *(No - Polish)*   *d.* **Nem** *(No - Hungarian)*
   e. **Não** *(No - Portuguese)*