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

Test Version: 286   **One-Answer Multiple Choice**   **164 Questions – 35 of 35%**

☞ 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/doing all these test instructions is: **Jes**

_____

1. **Did you read all the words of the test instructions on page one?**
   a. **Igen** *(Yes - Hungarian)*
   b. **Taip** *(Yes - Lithuanian)*
   c. **Jes** *(Yes - Esperanto)*
   d. **Sim** *(Yes - Portuguese)*
   e. **Tak** *(Yes - Polish)*

2. **My three-digit Lab Section number is:**
   a. My lecture room number, e.g. **T130**.
   b. The section number of my weekly 2-hour lab period.
   c. My lab room number, e.g. **B384**.
   d. The Test Version number printed in the top left corner.
   e. My lecture section number **400** or **410**.

3. When an **at** job runs, the current working directory is set to:
   a. the HOME directory of the user who created the job
   b. the system ROOT directory
   c. the directory with the name **/root**
   d. the current directory that was in use when the **at** job was created
   e. the directory with the name **/home**

4. To change your own CLS account password, use this exact command line:
   a. **passwd cst8207-alg**
   b. **passwd**
   c. **passwd cst8207.idallen.ca**
   d. **passwd --login**
   e. **passwd idallen-ubuntu**

5. What command changes a user's password?
   a. **mkpasswd**
   b. **password**
   c. **chsh**
   d. **passwd**
   e. **chpasswd**

6. Process signals in increasing order of strength:
   a. **KILL HUP TERM**
   b. **TERM KILL HUP**
   c. **HUP TERM KILL**
   d. **TERM HUP KILL**
   e. **HUP KILL TERM**

7. What command manipulates your personal list of repeated scheduled commands:
   a. **psmine**
   b. **dmesg**
   c. **ps lxww**
   d. **showall**
   e. **crontab**

8. Pick the correct order of operations:
   a. MBR, POST, BIOS, O/S boot
   b. POST, MBR, BIOS, O/S boot
   c. BIOS, MBR, POST, O/S boot
   d. BIOS, POST, MBR, O/S boot
   e. POST, BIOS, MBR, O/S boot

9. How many files does this command create:
       `ssh localhost touch '"a b c"'`
   a. **2**
   b. **0**
   c. **3**
   d. **1**
   e. **4**

10. What command runs a file system check on a disk partition:
    a. **mkfs** *partition*
    b. **fsck** *partition*
    c. **fdisk** *partition*
    d. **mount** *partition*
    e. **chkconfig** *partition*

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

12. 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. **bar**
    c. an error message and then the contents of the password file
    d. the conents of the password file followed by **hi**
    e. **hi**

13. What value to **chmod** would change the permissions on a file to **-wxrw-r-x**?
    a. **536**
    b. **653**
    c. **365**
    d. **201**
    e. **412**

14. In an empty directory, what permissions are on file **???** after these commands:
    `touch ??? *** ; chmod 111 *`
    `chmod 222 ??? ; chmod 444 '***'`
    a. **rw-rw-rw-**
    b. **-wx-wx-wx**
    c. **r--r--r--**
    d. **-w--w--w-**
    e. **--x--x--x**

15. Which command removes adjacent duplicate lines from a file?
    a. **duplicate**
    b. **dup**
    c. **dupl**
    d. **uniq**
    e. **unique**

16. What is contained in the **/etc/fstab** file?
    a. a list of file system tables used by the adduser command
    b. a list of file system tables used to identify partition types
    c. a list of currently mounted file systems
    d. a list of file system tables used by the usermod command
    e. a list of file systems to mount when booting the system

17. 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?
    a. **ls ..**   b. **ls .**
    c. **ls /home/foo/bar**   d. **ls /home/foo/bar/.**
    e. **ls /home/foo/bar/..**

18. The signal sent to a foreground process by typing the **[Ctrl-C]** key is:
    a. **SIGINT**   b. **SIGHUP**   c. **SIGSTOP**
    d. **SIGTERM**   e. **SIGKILL**

19. Given the following, can user **kirk** in group **starfleet** copy **./foo** to **bar**?
    ```
    drwxrw-r-x 2 root starfleet 4096 Oct 7 14:00 .
    -rwx-wx-wx 1 kirk starfleet 123  Oct 4 14:05 foo
    ```
    a. No, because **foo** has no read permissions for **kirk**
    b. No, because the directory is not accessible to **kirk**
    c. No, because the directory has no write permissions for others
    d. Yes, because **kirk** owns **foo**
    e. Yes, because **kirk** has write permissions on **foo**

20. What permissions are given to **newfile** after this command line:
    ```
    umask 632 ; touch newfile
    ```
    a. **----wxr--**   b. **---r--r--**   c. **--xr--r-x**
    d. **rw--wx-w-**   e. **r-x-wx-w-**

21. What value to **chmod** would change the permissions on a file to **--x-wx-w-**?
    a. **121**   b. **122**   c. **654**   d. **322**   e. **132**

22. What is the output on your screen of this command line:
    ```
    umask 475 ; mkdir newdir ; ls -ld newdir
    ```
    a. **dr--rwxr-x 2 it it 400 Jul 3 8:00 newdir**
    b. **d-wxrwx-w- 2 it it 400 Jul 3 8:00 newdir**
    c. **d-wx----w- 2 it it 400 Jul 3 8:00 newdir**
    d. **d-w-----w- 2 it it 400 Jul 3 8:00 newdir**
    e. **dr-xrwxr-x 2 it it 400 Jul 3 8:00 newdir**

23. What is usually contained in the environment variable **$USER**?
    a. your first and last user name, separated by a space
    b. a copy of your user mask (umask)
    c. your default user permissions for files
    d. your default user permissions for directories
    e. your login account name

24. Given the following, can user **kirk** in group **starfleet** modify **./foo**?
    ```
    dr-xr--r-x 2 root starfleet 4096 Oct 7 14:00 .
    -rw-rw-r-- 1 kirk starfleet 123  Oct 4 14:05 foo
    ```
    a. Yes, because **kirk** has write permissions on **foo**
    b. No, because the directory is not accessible to **kirk**
    c. Yes, because **kirk** owns **foo**
    d. No, because execute permissions are not set for **kirk** on **foo**
    e. No, because **kirk** has no write permission on the directory

25. What value to **chmod** would change the permissions on a file to **rw-r-xr--**?
    a. **654**   b. **212**   c. **221**   d. **530**   e. **351**

26. Given my directory **dir** and my file **dir/bar** owned by me, which permissions allow me to access and change or create new content (data) in the file **dir/bar** but not delete the file?
    a. Permissions **200** on directory **dir** and **200** on file **dir/bar**.
    b. Permissions **500** on directory **dir** and **100** on file **dir/bar**.
    c. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
    d. Permissions **500** on directory **dir** and **200** on file **dir/bar**.
    e. Permissions **400** on directory **dir** and **400** on file **dir/bar**.

27. 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. **1**   b. **1** followed by **2**
    c. an error message   d. no output on screen
    e. **2**

28. If you use **ls -l** on a file owned by a deleted user, the user/owner field is:
    a. the number zero
    b. the name **"deleted"**
    c. a number instead of an account name
    d. an account name in parentheses, e.g. **(luke)**
    e. the name **"removed"**

29. When going from Run Level 2 to Run Level 5, the system:
    a. goes through Run Levels 3 and 4 before Level 5
    b. goes through Run Levels 2, 3, and 4 before Level 5
    c. goes directly to Run Level 5
    d. initializes to Run Level 0, then goes to Level 5
    e. initializes to Run Level 1, then goes to Level 5

30. Pick the correct order of operations:
   a. **swapon, fdisk, mkswap**   *b.* **swapon, mkswap, fdisk**
   c. **mkswap, swapon, fdisk**   *d.* **mkswap, fdisk, swapon**
   e. **fdisk, mkswap, swapon**
31. Which GRUB command line displays the contents of the file **foo**?
   a. **p (hd0,0)/foo**   *b.* **ls (hd0,0)/foo**
   c. **mount (hd0,0)/foo**   *d.* **type (hd0,0)/foo**
   e. **cat (hd0,0)/foo**
32. What command displays the groups you are in?
   a. **mkgroups**   *b.* **gpasswd**   *c.* **grouprint**
   d. **groups**   *e.* **lstgroups**
33. Approximately how big is an **fdisk** partition size of **123456** *blocks*?
   a. **12.3 MB**   *b.* **123 GB**   *c.* **12.3 GB**
   d. **123 MB**   *e.* **123 KB**
34. Given the following, can user **kirk** in group **starfleet** modify **./foo**?
   dr-xr-xr-x 2 root starfleet 4096 Oct 7 14:00 .
   -rw-r-xr-x 1 kirk starfleet 123 Oct 4 14:05 foo
   a. No, because execute permissions are not set for **kirk** on **foo**
   b. Yes, because **kirk** owns **foo**
   c. No, because the directory is not accessible to **kirk**
   d. No, because **kirk** has no write permission on the directory
   e. Yes, because **kirk** has write permissions on **foo**
35. Which of these statements is true?
   a. you can only remove a file name if the file is owned by you
   b. you can only make links to files owned by you
   c. you can change the permissions of any file to which you can write
   d. you can only remove a file name if the file is writable by you
   e. you may be able to rename a file even if you do not own the file
36. What command creates an **ext3** file system on *device ?*
   a. **swapon -t ext3** *device*   *b.* **mount -t ext3** *device*
   c. **fdisk -t ext3** *device*   *d.* **mkfs -t ext3** *device*
   e. **file -t ext3** *device*
37. To bring a background shell job into the foreground, type:
   a. **kill %1**   *b.* **[Ctrl-D]**   *c.* **[Ctrl-Z]**
   d. **bg**   *e.* **fg**

38. 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?
   a. **ls /tmp/foo/.**   *b.* **ls /tmp/foo**
   c. **ls /tmp/foo/..**   *d.* **ls ..**
   e. **ls .**
39. Given the following, can user **kirk** in group **starfleet** append to **foobar**?
   drwxrw-rwx 2 root starfleet 4096 Apr 23 11:30 .
   -rw-rw-r-- 1 kirk starfleet 1024 Apr 23 11:30 foobar
   a. Yes, because **kirk** owns **foobar**
   b. No, because execute permissions are not set for **kirk** on **foobar**
   c. Yes, because **kirk** has write permissions on **foobar**
   d. No, because the directory is not accessible to **kirk**
   e. Unable to determine based on the information presented
40. Given the following, can user **kirk** in group **starfleet** copy **./foo** to **bar**?
   drwxr-xrwx 2 root starfleet 4096 Oct 7 14:00 .
   -r-xr-xr-x 1 kirk starfleet 123 Oct 4 14:05 foo
   a. No, because the directory is not accessible to **kirk**
   b. No, because **foo** has no write permissions for **kirk**
   c. Yes, because **kirk** has read permissions on **foo**
   d. No, because the directory has no write permissions for **kirk**
   e. Yes, because **kirk** owns **foo**
41. Which of the following PATH statements makes the most sense?
   a. **PATH=/bin/bash:/usr/bin:/bin**
   b. **PATH=/bin:/usr/bin:/etc/shadow**
   c. **PATH=/bin:/usr/bin**
   d. **PATH=/bin/ls:/etc/passwd:/usr/bin**
   e. **PATH=/bin:/etc/group:/usr/bin**
42. Which command line would show the inode number of a file?
   a. **ls -l file**   *b.* **cat -i file**   *c.* **ls -i file**
   d. **find -i file**   *e.* **cat -l file**
43. Which command mounts a device partition on directory *dir*?
   a. **mount /dev/sda1** *dir*
   b. **mount** *dir* **/dev/sda1**
   c. **mount /mnt/sda1** *dir*
   d. **mount -t ext3 /mnt/sda1** *dir*
   e. **mount -t ext2** *dir* **/dev/sda1**
44. What command line shows only your own processes, not all processes?
   a. **crontab**   *b.* **dmesg**   *c.* **ps lxww**
   d. **showall**   *e.* **psmine**

45. 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
 a. the file is owned by **home**
 b. the file is owned by **root**
 c. you own the file **bar**
 d. the file is owned by **passwd**
 e. you cannot execute the given commands; no file will be created

46. The *difference* between the system (**root**) crontab and all the user (personal) crontabs is:
 a. the system crontab has the date and time in it
 b. the personal crontab only runs commands once
 c. the system crontab also has the userid in it
 d. the personal crontab has the date and time in it
 e. the personal crontab also has the userid in it

47. 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
 a. **2**   b. **1**
 c. **1** followed by **2**   d. no output on screen
 e. an error message

48. What permissions are given to **newfile** after this command line:
 umask 326 ; touch newfile
 a. **r--r-x--x**   b. **-wxr-----**   c. **-wx-w-rw-**
 d. **r--r-----**   e. **-wx-w-r-x**

49. To shut down your Linux system in an orderly fashion:
 a. run **shutdown -h now**
 b. type the three key **[CONTROL]-[ALT]-[DEL]**
 c. type the three key **[CONTROL]-[ALT]-[F1]**
 d. select VMware "VM|Power Off this virtual machine"
 e. logout from each terminal and the machine will shut down

50. What value to **chmod** would change the permissions on a file to **r-xr--rw-**?
 a. **513**   b. **212**   c. **305**   d. **546**   e. **122**

51. What GRUB line do you modify to boot a machine single-user?
 a. **timeout**   b. **initrd**   c. **kernel**
 d. **boot**   e. **grub**

52. What command displays the kernel ring buffer of log messages:
 a. **psmine**   b. **dmesg**   c. **ps lxww**
 d. **showall**   e. **crontab**

53. The **minimum** permissions you need to move a file **foo** from directory **a** to directory **b** are:
 a. **wx** on **a**, **wx** on **b**, **w** on **foo**
 b. **wx** on **a**, **wx** on **b**, none on **foo**
 c. **rwx** on **a**, **wx** on **b**, none on **foo**
 d. **rwx** on **a**, **wx** on **b**, **rw** on **foo**
 e. **wx** on **a**, **wx** on **b**, **r** on **foo**

54. What GRUB command will display the partitions on a disk?
 a. **mount (hd2)**   b. **fdisk (hd2)**
 c. **ls (hd2)**   d. **geometry (hd2)**
 e. **cat (hd2)**

55. How many files does this command create:
 ssh localhost touch 'a b c'
 a. **4**   b. **0**   c. **1**   d. **2**   e. **3**

56. What value to **chmod** would change the permissions on a file to **-wxr-x--x**?
 a. **311**   b. **654**   c. **351**   d. **214**   e. **321**

57. What is the output on your screen of this command line:
 umask 547 ; mkdir newdir ; ls -ld newdir
 a. **dr-xr--rwx 1 me me 0 Feb 20 07:55 newdir**
 b. **d-w--w---- 1 me me 0 Feb 20 07:55 newdir**
 c. **dr--r--rw- 1 me me 0 Feb 20 07:55 newdir**
 d. **d-w--wx--- 1 me me 0 Feb 20 07:55 newdir**
 e. **d-w--wxrwx 1 me me 0 Feb 20 07:55 newdir**

58. The password **:x:** in **/etc/passwd** means:
 a. the encrypted password is **"x"**
 b. the password is locked
 c. the account is locked
 d. the unencrypted password is stored in the group file
 e. the encrypted password is stored in the shadow file

59. What permissions are given to **newdir** after this command line:
 umask 156 ; mkdir newdir
 a. **r-x-w-rw-**   b. **r-x--x---**   c. **rw--w----**
 d. **--xr-xrw-**   e. **rw--w---x**

60. Given the following, can user **kirk** in group **starfleet** modify **./foo**?
 dr-xr-xr-x 2 root starfleet 4096 Oct 7 14:00 .
 -r-xrwxrwx 1 kirk starfleet 123 Oct 4 14:05 foo
 a. No, because execute permissions are not set for **kirk** on **foo**
 b. Yes, because **kirk** owns **foo**
 c. No, because the directory is not accessible to **kirk**
 d. No, because **kirk** has no write permissions on **foo**
 e. No, because **kirk** has no write permission on the directory

61. What command powers down the machine safely?
    a. **shutdown**   *b.* **gpasswd**   *c.* **chkconfig**
    d. **passwd**   *e.* **fdisk**

62. Which Linux device is the third partition of the first disk?
    a. **/dev/sd31**   *b.* **/dev/sda3**   *c.* **/dev/sdc1**
    d. **/dev/sd3a**   *e.* **/dev/sd1c**

63. The **minimum** permissions you need to modify a file **foo** in directory **a** are:
    a. **wx** on **a**, **w** on **foo**   *b.* **rwx** on **a**, none on **foo**
    c. **x** on **a**, **w** on **foo**   *d.* **rwx** on **a**, **rw** on **foo**
    e. **wx** on **a**, none on **foo**

64. Given my directory **dir** and my file **dir/bar** owned by me, which permissions allow me to access and change or create new content (data) in the file **dir/bar** but not delete the file?
    a. Permissions **300** on directory **dir** and **200** on file **dir/bar**.
    b. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
    c. Permissions **500** on directory **dir** and **600** on file **dir/bar**.
    d. Permissions **400** on directory **dir** and **400** on file **dir/bar**.
    e. Permissions **100** on directory **dir** and **100** on file **dir/bar**.

65. Given the following, can user **kirk** in group **starfleet** rename **./foo** to **bar**?
    ```
    d----wx--- 2 root starfleet 4096 Oct 7 14:00 .
    ---------- 1 kirk starfleet 123  Oct 4 14:05 foo
    ```
    a. Yes, because **kirk** owns **foo**
    b. No, because **kirk** cannot read the directory
    c. Yes, because **kirk**'s group matches the group writable directory
    d. No, because **kirk** has no permissions on **foo**
    e. No, because the directory has no permissions for other users

66. Which command line below allows programs in the current directory to execute (a security risk!) without preceding the names with **./**?
    a. **$PATH=/usr/bin:./bin**   *b.* **PATH=/usr/bin/.:$HOME**
    c. **PATH=./$HOME:/usr/bin**   *d.* **$PATH=.:$HOME:/usr/bin**
    e. **PATH=/bin:/usr/bin:.**

67. The **-v** option to the **grep** command does what?
    a. turns off the translation of unprintable characters
    b. prints the version number of the grep command
    c. selects lines that do not contain a match for the supplied pattern
    d. selects lines that do not contain unprintable characters
    e. turns on the translation of unprintable characters

68. The **minimum** permissions you need to read a file **foo** in directory **a** are:
    a. **rwx** on **a**, none on **foo**   *b.* **rwx** on **a**, **rw** on **foo**
    c. **wx** on **a**, none on **foo**   *d.* **x** on **a**, **r** on **foo**
    e. **wx** on **a**, **w** on **foo**

69. Name three types of partitions:
    a. basic, extended, logical   *b.* primary, extended, linear
    c. primary, extended, logical   *d.* primary, enhanced, logical
    e. primary, enhanced, linear

70. Approximately how big is an **fdisk** partition size of **123456789** *blocks*?
    a. **123 GB**   *b.* **123 TB**   *c.* **12.3 TB**
    d. **123 MB**   *e.* **12.3 GB**

71. What value to **chmod** would change the permissions on a file to **-wxr-xrw-**?
    a. **356**   *b.* **210**   *c.* **563**   *d.* **421**   *e.* **635**

72. What is contained in the local variable **$$** ?
    a. the command name of the previous command line
    b. the first argument of the previous command line
    c. the process ID of the current shell
    d. **$$** is not a valid variable name
    e. the cpu cost of the current session, in dollars

73. What value **umask** gives a new directory permissions **rw---x-w-**?
    a. **612**   *b.* **165**   *c.* **211**   *d.* **412**   *e.* **423**

74. Given the following, can user **kirk** in group **starfleet** copy **./foo** to **bar**?
    ```
    drwx-wx--x 2 root starfleet 4096 Oct 7 14:00 .
    --wxrwxrwx 1 kirk starfleet 123  Oct 4 14:05 foo
    ```
    a. Yes, because **kirk** has write permissions on **foo**
    b. Yes, because **kirk** owns **foo**
    c. No, because the directory has no write permissions for **kirk**
    d. No, because the directory is not readable by **kirk**
    e. No, because **foo** has no read permissions for **kirk**

75. To list your personal crontab, type:
    a. **cat crontab**   *b.* **atq**
    c. **/etc/crontab**   *d.* **/var/log/crontab**
    e. **crontab -l**

76. 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. **5**   *b.* **1**   *c.* **6 6**   *d.* **4**   *e.* **6**

77. Give the GRUB device name for the fourth partition of the third disk:
    a. **(hd3,2)**   *b.* **(sdd,3)**   *c.* **(hd4,3)**
    d. **(hd2,3)**   *e.* **(sd2,3)**

78. Which is the Linux fifth disk device?
    a. **/dev/sd5a**   *b.* **/dev/sde**   *c.* **/dev/sd5**
    d. **/dev/sda5**   *e.* **/dev/s5a**

79. Which is the second DOS *logical* partition?
    - *a.* `/dev/sd2a`
    - *b.* `/dev/sdb1`
    - *c.* `/dev/sd6a`
    - *d.* `/dev/sda2`
    - *e.* `/dev/sda6`

80. What is the output on your screen of this command line:
    ```
    umask 762 ; touch newfile ; ls -l newfile
    ```
    - *a.* `------xr-x 1 me me 0 Oct 1 1:12 newfile`
    - *b.* `-rwxrw-w- 1 me me 0 Oct 1 1:12 newfile`
    - *c.* `-rw-rw-w- 1 me me 0 Oct 1 1:12 newfile`
    - *d.* `--------wx 1 me me 0 Oct 1 1:12 newfile`
    - *e.* `-------r-- 1 me me 0 Oct 1 1:12 newfile`

81. What command connects a file system in a partition to a directory:
    - *a.* `fsck` *partition directory*
    - *b.* `mount` *partition directory*
    - *c.* `fdisk` *partition directory*
    - *d.* `file` *partition directory*
    - *e.* `mkfs` *partition directory*

82. 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?
    - *a.* Permissions `300` on directory `dir` and `500` on file `dir/bar`.
    - *b.* Permissions `100` on directory `dir` and `100` on file `dir/bar`.
    - *c.* Permissions `500` on directory `dir` and `400` on file `dir/bar`.
    - *d.* Permissions `300` on directory `dir` and `300` on file `dir/bar`.
    - *e.* Permissions `100` on directory `dir` and `200` on file `dir/bar`.

83. 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 256 is the inode number of this directory.
    - *b.* The number 512 is the size of this directory.
    - *c.* The number 256 is the count of links (names) this directory has.
    - *d.* The number 512 is the count of links (names) this directory has.
    - *e.* The number 755 is the octal permissions of this directory.

84. The **minimum** permissions you need to delete a file `foo` from directory `a` are:
    - *a.* `wx` on `a`, `w` on `foo`
    - *b.* `wx` on `a`, `r` on `foo`
    - *c.* `wx` on `a`, none on `foo`
    - *d.* `rwx` on `a`, none on `foo`
    - *e.* `rwx` on `a`, `rw` on `foo`

85. What value `umask` gives a new file permissions `r--r-----`?
    - *a.* `447`
    - *b.* `326`
    - *c.* `220`
    - *d.* `440`
    - *e.* `110`

86. What command terminates processes based on their name (not safe!):
    - *a.* `dmesg`
    - *b.* `ps lxww`
    - *c.* `killall`
    - *d.* `kill`
    - *e.* `crontab`

87. Which of these is a likely kernel version number?
    - *a.* `139285`
    - *b.* `2.6.31.5-127.fc12.i686.PAE`
    - *c.* `#1 SMP Sat Nov 7 21:25:57 EST 2009`
    - *d.* `83 Linux`
    - *e.* `Linux`

88. What value `umask` gives a new directory permissions `rw--w---x`?
    - *a.* `156`
    - *b.* `421`
    - *c.* `432`
    - *d.* `211`
    - *e.* `621`

89. On a disk with eight partitions, give the correct partition names after you delete partition `sda5`:
    - *a.* `sda1 sda2 sda3 sda4 sda5 sda6 sda7`
    - *b.* `sda1 sda2 sda3 sda4 sda5 sda6`
    - *c.* `sda1 sda2 sda3 sda4 sda6 sda7 sda8`
    - *d.* `sda1 sda2 sda3 sda4 sda5 sda7 sda8`
    - *e.* `sda1 sda2 sda3 sda4 sda5 sda6 sda8`

90. GRUB boot menu entries are a paragraph of several lines. The keyword on the first line of the paragraph is always:
    - *a.* `kernel`
    - *b.* `timeout`
    - *c.* `title`
    - *d.* `boot`
    - *e.* `initrd`

91. What value `umask` gives a new file permissions `r--r-----`?
    - *a.* `337`
    - *b.* `446`
    - *c.* `220`
    - *d.* `440`
    - *e.* `110`

92. What permissions are given to `newdir` after this command line:
    ```
    umask 165 ; mkdir newdir
    ```
    - *a.* `r-x-----x`
    - *b.* `r-xrw--w-`
    - *c.* `rw-----w-`
    - *d.* `--xrw-r-x`
    - *e.* `rw---x-w-`

93. What permissions are given to `newdir` after this command line:
    ```
    umask 516 ; mkdir newdir
    ```
    - *a.* `-w-rw---x`
    - *b.* `-w-r-xrw-`
    - *c.* `--xr-x---`
    - *d.* `r-x--xrw-`
    - *e.* `-w-rw----`

94. Give the GRUB device name for the second partition of the third disk:
    - *a.* `(sd2,3)`
    - *b.* `(hd2,1)`
    - *c.* `(hd1,2)`
    - *d.* `(sdc,2)`
    - *e.* `(hd2,3)`

95. What command modifies existing account information (and possibly home directory)?
    - *a.* `adduser`
    - *b.* `newuser`
    - *c.* `passwd`
    - *d.* `makeuser`
    - *e.* `usermod`

96. Regarding the **-t type** option, e.g. **-t ext3**:
    a. you must give the type when using **fdisk**
    b. you must give the type when using **mkswap**
    c. you can usually omit the type when using **mount**
    d. you must give the type when using **swapon**
    e. you can usually omit the type when using **mkfs**

97. When a personal **crontab** job runs, the current working directory is set to:
    a. the current directory that was in use when the **crontab** job was created
    b. the system ROOT directory
    c. the HOME directory of the user who created the job
    d. the directory with the name **/root**
    e. the directory with the name **/home**

98. A Unix/Linux "tarball" is:
    a. a single compressed file containing one uncompressed file
    b. a multi-file directory containing individual compressed files
    c. a single-file that contains individual uncompressed files
    d. a single-file that contains individual compressed files
    e. a multi-file directory containing individual uncompressed files

99. 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?
    a. Permissions **500** on directory **dir** and **500** on file **dir/bar**.
    b. Permissions **600** on directory **dir** and **300** on file **dir/bar**.
    c. Permissions **700** on directory **dir** and **500** on file **dir/bar**.
    d. Permissions **700** on directory **dir** and **200** on file **dir/bar**.
    e. Permissions **600** on directory **dir** and **500** on file **dir/bar**.

100. What high-level command fetches and tracks packages for CentOS or RedHat?
    a. **wget**   b. **apt-get**   c. **tar**
    d. **rpm**   e. **yum**

101. Which of these commands makes a file owned by me, also readable by me?
    a. **chmod r+u myfile**   b. **chmod u+r ./myfile**
    c. **chmod r=u ./myfile**   d. **umask 300 ./myfile**
    e. **umask 400 myfile**

102. What command sets group administrator users?
    a. **modgroup**   b. **passwd**   c. **usermod**
    d. **groupedit**   e. **gpasswd**

103. Other than root, who can change the permissions of the following directory?
        dr-xrwxrwx 17 foo bar 4096 Apr 15 16:40 .
    a. only user **foo**
    b. only users in group **bar**
    c. user **foo** and any user in group **bar**
    d. anyone except user **foo**
    e. only root can change the permissions

104. What is the output on your screen of this command line:
        umask 574 ; mkdir newdir ; ls -ld newdir
    a. **dr--rw-r-- 1 me me 0 Oct 1 07:55 newdir**
    b. **d-w-rwx-wx 1 me me 0 Oct 1 07:55 newdir**
    c. **dr-xrwxr-- 1 me me 0 Oct 1 07:55 newdir**
    d. **d-w-----wx 1 me me 0 Oct 1 07:55 newdir**
    e. **d-w-----w- 1 me me 0 Oct 1 07:55 newdir**

105. Which command line below allows programs in the current directory to execute (a security risk!) without preceding the names with **./**?
    a. **$PATH=.:$HOME:/usr/bin**   b. **PATH=/usr/bin:.:/bin**
    c. **PATH=./$HOME:/usr/bin**   d. **PATH=/usr/bin/.:$HOME**
    e. **$PATH=/usr/bin:./bin**

106. The shadow password file is used:
    a. to store secondary passwords for times when you forget your main one
    b. to reduce the size of the main password file for faster access
    c. to allow passwords to exist on partitions other than the ROOT
    d. to hide encrypted passwords from viewing by ordinary users
    e. to keep a back-up of the main password file in case of corruption

107. Which **crontab** line executes at **13:54** every day?
    a. **13 * * * 54 command**   b. *** * * 54 13 command**
    c. **13 54 * * * command**   d. **54 13 * * * command**
    e. *** * * 13 54 command**

108. Approximately how big is an **fdisk** partition size of **12345678** *blocks*?
    a. **1.2 TB**   b. **12 GB**   c. **1.2 GB**
    d. **12 MB**   e. **12 TB**

109. Pick the correct order of operations:
    a. **mkfs, mount, fdisk**   b. **fdisk, mkfs, mount**
    c. **mount, mkfs, fdisk**   d. **mount, fdisk, mkfs**
    e. **mkfs, fdisk, mount**

110. What command creates a new user account?
    a. **passwd**   b. **groupmod**   c. **gpasswd**
    d. **useradd**   e. **makeuser**

111. Which file contains a list of possible kernels to run after POST?
 a. `/var/log`
 b. `/etc/inittab`
 c. `/boot/grub/grub.conf`
 d. `/etc/init.d`
 e. `/etc/fstab`

112. The **minimum** permissions you need to link a file **foo** from directory **a** to directory **b** are:
 a. `wx` on **a**, `wx` on **b**, `r` on **foo**
 b. `rwx` on **a**, `wx` on **b**, `rw` on **foo**
 c. `rwx` on **a**, `wx` on **b**, none on **foo**
 d. `x` on **a**, `wx` on **b**, none on **foo**
 e. `wx` on **a**, `wx` on **b**, `w` on **foo**

113. 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 -3 | head -1`
 a. `1`
 b. `7 7`
 c. `3`
 d. `7`
 e. `8`

114. Given user **foo** in group **foo** and user **bar** in group **bar**, which command line enables a file to be read by both **foo** and **bar**:
 a. `chown bar file ; chown foo file ; chmod 333 file`
 b. `chown foo:foo file ; chmod bar:bar file`
 c. `chown foo:bar file ; chmod 077 file`
 d. `chown foo:bar file ; chmod 440 file`
 e. `chown foo file ; chown bar file ; chmod 440 file`

115. What is the output on your screen of this command line:
 `umask 162 ; touch newfile ; ls -l newfile`
 a. `----rw--w- 1 me me 0 Oct 1 01:12 newfile`
 b. `-rw---xr-x 1 me me 0 Oct 1 01:12 newfile`
 c. `-rw----r-- 1 me me 0 Oct 1 01:12 newfile`
 d. `---xrw--w- 1 me me 0 Oct 1 01:12 newfile`
 e. `-rw---x-w- 1 me me 0 Oct 1 01:12 newfile`

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

117. How many files does this command create:
 `ssh localhost touch a b c`
 a. `0`
 b. `3`
 c. `2`
 d. `1`
 e. `4`

118. When a user named **foo** runs a command in a **setuid** executable file owned by **bar**, in a directory owned by **root**, the file executes with the permissions of:
 a. `bar`
 b. `root and foo`
 c. `root`
 d. `foo`
 e. `root and bar`

119. If I mount **sda1** on **/one** and **sda2** on **/two,** how can I link the existing file **/one/foo** to the new pathname **/two/bar**?
 a. `ln /one/bar /two/foo`
 b. `ln /two/bar /one/foo`
 c. `ln -s /one/foo /two/bar`
 d. `ln -s /two/bar /one/foo`
 e. `ln /one/foo /two/bar`

120. In an empty directory, what permissions are on file **???** after these commands:
 `touch ??? *** ; chmod 111 *`
 `chmod 222 ? ; chmod 444 '*'`
 a. `-w--w--w-`
 b. `rw-rw-rw-`
 c. `--x--x--x`
 d. `-wx-wx-wx`
 e. `r--r--r--`

121. What is the output on your screen of this command line:
 `umask 457 ; mkdir newdir ; ls -ld newdir`
 a. `d-w--w---- 2 me me 512 Oct 1 1:12 newdir`
 b. `dr-xr-xrwx 2 me me 512 Oct 1 1:12 newdir`
 c. `dr--r-xrwx 2 me me 512 Oct 1 1:12 newdir`
 d. `d-wx-w---- 2 me me 512 Oct 1 1:12 newdir`
 e. `d-wx-w-rwx 2 me me 512 Oct 1 1:12 newdir`

122. If I mount one file system on directory **/a** and another file system on directory **/b,** how can I link the existing file **/a/foo** to the new pathname **/b/new**?
 a. `ln /b/new /a/foo`
 b. `ln /a/new /b/foo`
 c. `ln /a/foo /b/new`
 d. `ln -s /b/new /a/foo`
 e. `ln -s /a/foo /b/new`

123. What is usually contained in the environment variable **$PATH**?
 a. the absolute path of your login shell
 b. the absolute path of the system **/path** directory
 c. the absolute path of your login home directory
 d. a colon-separated list of directories containing command names
 e. a colon-separated list of your **passwd** file fields

124. Pick the correct order of operations:
 a. `mount, mkfs, fdisk`
 b. `mount, fdisk, mkfs`
 c. `mkfs, fdisk, mount`
 d. `fdisk, mkfs, mount`
 e. `fdisk, mount, mkfs`

125. What command will show the type of file system inside an unmounted *partition ?*
 a. `file -s` *partition*
 b. `file` *partition*
 c. `mount | grep '`*partition*`'`
 d. `fdisk -s` *partition*
 e. `fdisk -l` *partition*

126. What permissions are given to **newfile** after this command line:
 `umask 362 ; touch newfile`
 a. `-wx---r--`
 b. `-wxr-x-w-`
 c. `r-----r--`
 d. `-wxrw--w-`
 e. `r----xr-x`

127. Which of these statements is true?
    a. You can make a hard link to a directory.
    b. If you give me write permission on a file owned by you, I can then use **chmod** to change its permissions.
    c. You only need "**r--**" permission on directory "**foo**" for "**ls -l foo**" to work.
    d. The "**ln**" command takes two arguments, so the maximum number of hard links a file can have is two.
    e. To make a hard link to file "**foo**" named "**bar**", file "**foo**" must exist.

128. When a user named **foo** runs a command in an executable file owned by **bar**, in a directory owned by **root**, the file executes with the permissions of:
    a. **root**   b. **bar**   c. **root and foo**
    d. **foo**   e. **root and bar**

129. What command shows all partition names and System IDs (types) on a disk:
    a. **mount -l** *disk*   b. **find -l** *disk*   c. **fsck -l** *disk*
    d. **fdisk -l** *disk*   e. **mkfs -l** *disk*

130. When you use **chkconfig** to enable a service for Run Level 4, the service will:
    a. be stopped, then started, if the current Run Level is 4
    b. be started immediately, if the current Run Level is 4
    c. be started immediately, if the current Run Level is 4 or less
    d. be started immediately, no matter what the current Run Level
    e. be enabled for Run Level 4 but will not be started

131. Which is the best choice for an extended partition size that will hold exactly three 100MB logical partitions?
    a. 400MB   b. 290MB   c. 100MB
    d. 300MB   e. 320MB

132. What value **umask** gives a new file permissions **r--r-----**?
    a. **440**   b. **237**   c. **446**   d. **110**   e. **220**

133. What GRUB command will set a partition prefix that will prefix all file names typed without partition prefixes, e,g. **/grub/device.map**?
    a. **title (hd0,0)**   b. **kernel (hd0,0)**
    c. **root (hd0,0)**   d. **default=(hd0,0)**
    e. **root=(hd0,0)**

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

135. To show all your one-time scheduled commands, type:
    a. **cat crontab**   b. **/var/log/crontab**
    c. **/etc/crontab**   d. **crontab -l**
    e. **atq**

136. 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?
    a. **mkdir protected ; chmod 333 .**
    b. **mkdir protected ; chmod 222 protected**
    c. **mkdir protected ; chmod 333 protected**
    d. **mkdir protected ; cd protected ; chmod ugo=w .**
    e. **mkdir protected ; cd protected ; chmod ugo-rw .**

137. 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 /tmp/dir/.**
    c. **ls ..**   d. **ls .**
    e. **ls /tmp/dir/..**

138. What is the output on your screen of this command line:
    umask 674 ; touch newfile ; ls -l newfile
    a. **-rw-rw-r-- 1 me me 0 Feb 20 07:55 newfile**
    b. **-rw-rwxr-- 1 me me 0 Feb 20 07:55 newfile**
    c. **---x----wx 1 me me 0 Feb 20 07:55 newfile**
    d. **--------w- 1 me me 0 Feb 20 07:55 newfile**
    e. **--w--wxr-x 1 me me 0 Feb 20 07:55 newfile**

139. What value **umask** gives a new file permissions **r--r-----**?
    a. **226**   b. **440**   c. **220**   d. **110**   e. **446**

140. Given the following, can user **kirk** in group **starfleet** remove **./foo**?
    d----wx--- 2 root starfleet 4096 Oct 7 14:00 .
    ---------- 1 kirk starfleet 123 Oct 4 14:05 foo
    a. No, because the directory is not accessible to **kirk**
    b. Yes, because **kirk** owns **foo**
    c. Yes, because **kirk**'s group matches the group writable directory
    d. No, because the directory has no permissions for other users
    e. No, because **kirk** has no permissions on **foo**

141. On a disk with eight partitions, give the correct partition names after you delete partition **sda2**:
    a. **sda1 sda2 sda3 sda4 sda6 sda7 sda8**
    b. **sda1 sda3 sda4 sda5 sda6 sda7 sda8**
    c. **sda1 sda2 sda3 sda4 sda5 sda6**
    d. **sda1 sda2 sda3 sda4 sda5 sda7 sda8**
    e. **sda1 sda2 sda3 sda4 sda5 sda6 sda7**

142. Who can change the permissions of the following directory?
    dr-xrwxrwx 17 foo bar 4096 Apr 15 16:40 .
  a. user **foo** and any user in group **bar**
  b. only user **foo**
  c. any users
  d. only users in group **bar**
  e. anyone except user **foo**

143. Give the GRUB device name for the third partition of the fourth disk:
  a. **(hd3,2)**   *b.* **(sd2,3)**   *c.* **(hd4,3)**
  d. **(hd2,3)**   *e.* **(sdd,3)**

144. Given my directory **dir** and my file **dir/bar** owned by me, which permissions allow me to access and change or create new content (data) in the file **dir/bar** but not delete the file?
  a. Permissions **400** on directory **dir** and **400** on file **dir/bar**.
  b. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
  c. Permissions **100** on directory **dir** and **200** on file **dir/bar**.
  d. Permissions **100** on directory **dir** and **100** on file **dir/bar**.
  e. Permissions **200** on directory **dir** and **200** on file **dir/bar**.

145. What value to **chmod** would change the permissions on a file to **r-x-wxrw-**?
  a. **365**   *b.* **120**   *c.* **241**   *d.* **653**   *e.* **536**

146. To change the group of a file to **me**, type:
  a. **newuser me file**   *b.* **chown :me file**
  c. **newuser file me**   *d.* **umask :me file**
  e. **chown me file**

147. Under what directory are system configuration files usually stored?
  a. **/var/log/**   *b.* **/boot/grub**   *c.* **/grub/boot/**
  d. **/log/var/**   *e.* **/etc**

148. Which command counts the number of Unix permission groups you are in?
  a. **echo groups | wc**   *b.* **groups | wc**
  c. **wc groups**   *d.* **id | wc**
  e. **umask | wc**

149. Which file contains a list of file systems to mount when booting the system?
  a. **/etc/fstab**   *b.* **/etc/init.d**
  c. **/var/log**   *d.* **/var/spool**
  e. **/etc/grub.conf**

150. The **minimum** permissions you need to copy a file **foo** from directory **a** to directory **b** are:
  a. **rwx** on **a**, **wx** on **b**, none on **foo**
  b. **x** on **a**, **wx** on **b**, **r** on **foo**
  c. **rx** on **a**, **wx** on **b**, **w** on **foo**
  d. **wx** on **a**, **wx** on **b**, none on **foo**
  e. **wx** on **a**, **wx** on **b**, **rw** on **foo**

151. What command line modifies and moves (in one command line) the home directory **foo** to **bar** for the existing user **bob**?
  a. **usermod -d -m /home/bar bob**
  b. **usermod -m -d /home/foo /home/bar**
  c. **usermod -m -d /home/bar bob**
  d. **usermod -dm /home/bar bob**
  e. **usermod -d -m /home/bob bar**

152. Under what directory are system log files usually stored?
  a. **/etc/log**   *b.* **/boot/grub**   *c.* **/grub/boot**
  d. **/log/var**   *e.* **/var/log**

153. What does the **-v** option to the **grep** command do?
  a. turns off the translation of unprintable characters
  b. selects lines that do not contain unprintable characters
  c. selects lines that do not contain a match for the supplied pattern
  d. prints the version number of the grep command
  e. turns on the translation of unprintable characters

154. Given the following, can user **kirk** in group **starfleet** remove **./foo**?
  drwxr-xrwx 2 root starfleet 4096 Oct 7 14:00 .
  rwxrwxrwx- 1 kirk starfleet 123 Oct 4 14:05 foo
  a. Yes, because **kirk** matches the writable other permissions
  b. No, because the directory is not accessible to **kirk**
  c. Yes, because **kirk** owns **foo**
  d. No, because **kirk** has no write permission on the directory
  e. Yes, because **kirk** has full permissions on **foo**

155. Which command usually goes in your **.bash_profile** file?
  a. **./.bashrc source**   *b.* **./.bash_profile source**
  c. **cat ./.bashrc**   *d.* **source ./.bash_profile**
  e. **source ./.bashrc**

156. 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 123 is the count of links (names) this directory has.
  b. The number 456 is the octal permissions of this directory.
  c. The number 123 is the size in bytes of this directory.
  d. The number 456 is the inode number of this directory.
  e. The number 456 is the size of this directory.

157. 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?
    a. Permissions **500** on directory **dir** and **500** on file **dir/bar**.
    b. Permissions **300** on directory **dir** and **200** on file **dir/bar**.
    c. Permissions **100** on directory **dir** and **300** on file **dir/bar**.
    d. Permissions **300** on directory **dir** and **400** on file **dir/bar**.
    e. Permissions **100** on directory **dir** and **500** on file **dir/bar**.

158. Pick the correct order of operations:
    a. **fdisk, mkswap, swapon**   b. **swapon, fdisk, mkswap**
    c. **swapon, mkswap, fdisk**   d. **fdisk, swapon, mkswap**
    e. **mkswap, fdisk, swapon**

159. What value to **chmod** would change the permissions on a file to **r-----rw-**?
    a. **406**   b. **122**   c. **322**   d. **654**   e. **102**

160. When you use the **service** command to *start* a service that is not currently running, the service will:
    a. start immediately, no matter what the current Run Level
    b. be enabled for that Run Level, but will not be started
    c. be enabled, and will start if valid for the current Run Level
    d. be enabled for the current Run Level, and will then be started
    e. be queued for a later start when changing Run Levels

161. What value to **chmod** would change the permissions on a file to **rw-r--r--**?
    a. **211**   b. **644**   c. **344**   d. **311**   e. **244**

162. Which of these statements is true?
    a. you can only make links to files owned by you
    b. you may be able to rename a file even if you do not own the file
    c. you can only remove a file name if the file is writable by you
    d. you can only rename a file if you are the owner of the file
    e. you can only remove a file name if the file is owned by you

163. What value **umask** gives a new directory permissions **-w-rw---x**?
    a. **121**   b. **516**   c. **241**   d. **342**   e. **261**

164. **Did you read all the words of the test instructions on page one?**
    a. **Taip** *(Yes - Lithuanian)*   b. **Igen** *(Yes - Hungarian)*
    c. **Sim** *(Yes - Portuguese)*   d. **Jes** *(Yes - Esperanto)*
    e. **Tak** *(Yes - Polish)*

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