PRINT Name: _____

Test Version: 744   **One-Answer Multiple Choice**   **179 Questions – 30 of 30%**

☞ Read **all** the words of these instructions and **both** sides (back and front) of all pages.
☞ Put your name on this Question Sheet. You may write or draw on this Question Sheet.
☞ 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. Under what directory are system log files usually stored?
   a. `/log/var` b. `/var/log` c. `/boot/grub`
   d. `/grub/boot` e. `/etc/log`

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

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

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

5. Given a sector size of 512 bytes, approximately how many megabytes are unused before the start of a partition that begins on sector 4096?
   a. `4` b. `2` c. `1` d. `10` e. `20`

6. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   `drw---x--- 2 pat bg2 60 Jan 1 1:00 foo`
   `-r------w- 1 pat ted  0 Jan 1 1:00 foo/bar`
   a. **bob** can rename the file
   b. **bob** can list names in the directory
   c. **bob** can access and write on the file
   d. **pat** can rename the file
   e. **pat** can create a new file in the directory

7. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   `dr-x-wx--- 2 pat bg1 60 Jan 1 1:00 foo`
   `-rwxrwxr-x 1 pat ted  0 Jan 1 1:00 foo/bar`
   a. **pat** can create a new file in the directory
   b. **bob** can list names in the directory
   c. **bob** can create a new file in the directory
   d. **pat** can rename the file
   e. **bob** can access and write on the file

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

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

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

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

12. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    `d--xr----x 2 bob ted 60 Jan 1 1:00 foo`
    `--w--w-r-x 1 bob bg1  0 Jan 1 1:00 foo/bar`
    a. **pat** can rename the file
    b. **pat** can access and write on the file
    c. **bob** can create a new file in the directory
    d. **bob** can list names in the directory
    e. **bob** can access and write on the file

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

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

15. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    drw-rw-rwx 2 pat bg1 60 Jan 1 1:00 foo
    -rwxrwxrwx 1 pat ted  0 Jan 1 1:00 foo/bar
    ```
    - a. **bob** can rename the file
    - b. **pat** can create a new file in the directory
    - c. **pat** can rename the file
    - d. **bob** can list names in the directory
    - e. **bob** can access and write on the file

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

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

18. 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 **500** on directory **dir** and **600** on file **dir/bar**.
    - c. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
    - d. Permissions **300** on directory **dir** and **200** on file **dir/bar**.
    - e. Permissions **100** on directory **dir** and **100** on file **dir/bar**.

19. Given the following, can user **bird** in group **sesame** copy **./foo** to **bar**?
    ```
    drwxr-xrwx 2 root sesame 4096 Oct 7 14:00 .
    -r-xr-xr-x 1 bird sesame 123  Oct 4 14:05 foo
    ```
    - a. Yes; permissions don´t apply because **bird** owns **foo**
    - b. No, because the directory has no write permissions for **bird**
    - c. No, because the directory is not accessible to **bird**
    - d. No, because **foo** has no write permissions for **bird**
    - e. Yes, because **bird** has read permissions on **foo**

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

21. 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 **100** on directory **dir** and **100** on file **dir/bar**.
    - c. Permissions **200** on directory **dir** and **200** on file **dir/bar**.
    - d. Permissions **100** on directory **dir** and **200** on file **dir/bar**.
    - e. Permissions **600** on directory **dir** and **700** on file **dir/bar**.

22. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr-x-wx--x 2 bob ted 60 Jan 1 1:00 foo
    -r-x-w-r-x 1 bob bg1  0 Jan 1 1:00 foo/bar
    ```
    - a. **pat** can access and write on the file
    - b. **bob** can list names in the directory
    - c. **bob** can create a new file in the directory
    - d. **bob** can access and write on the file
    - e. **pat** can rename the file

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

24. 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 **400** on file **dir/bar**.
    - b. Permissions **100** on directory **dir** and **200** on file **dir/bar**.
    - c. Permissions **100** on directory **dir** and **100** on file **dir/bar**.
    - d. Permissions **300** on directory **dir** and **300** on file **dir/bar**.
    - e. Permissions **300** on directory **dir** and **500** on file **dir/bar**.

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

26. 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 system crontab also has the userid in it
    - c. the personal crontab only runs commands once
    - d. the personal crontab also has the userid in it
    - e. the personal crontab has the date and time in it

27. The **minimum** permissions you need to delete a file **foo** from 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. **wx** on **a**, **r** on **foo**
    - e. **wx** on **a**, **w** on **foo**

28. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr-xrwxrw- 2 pat pgg 60 Jan 1 1:00 foo
    --w----r-x 1 bob bg1  0 Jan 1 1:00 foo/bar
    ```
    - a. **bob** can create a new file in the directory
    - b. **pat** can rename the file
    - c. **bob** can list names in the directory
    - d. **pat** can access and write on the file
    - e. **bob** can access and write on the file

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

30. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr-x----wx 2 pat ted 60 Jan 1 1:00 foo
    -r-xr-xrwx 1 pat bg1  0 Jan 1 1:00 foo/bar
    ```
    - a. **pat** can rename the file
    - b. **bob** can list names in the directory
    - c. **pat** can access and write on the file
    - d. **bob** can access and write on the file
    - e. **bob** can create a new file in the directory

31. 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 **500** on directory **dir** and **100** on file **dir/bar**.
    - d. Permissions **500** on directory **dir** and **200** on file **dir/bar**.
    - e. Permissions **200** on directory **dir** and **200** on file **dir/bar**.

32. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    d--xrwx--x 2 bob ted 60 Jan 1 1:00 foo
    ----rw--w- 1 bob bg1  0 Jan 1 1:00 foo/bar
    ```
    - a. **pat** can rename the file
    - b. **bob** can access and write on the file
    - c. **bob** can create a new file in the directory
    - d. **pat** can access and write on the file
    - e. **bob** can list names in the directory

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

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

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

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

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

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

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

40. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    d-wx----w- 2 pat pgg 60 Jan 1 1:00 foo
    -rwxrwxr-x 1 bob bg2  0 Jan 1 1:00 foo/bar
    ```
    - a. **bob** can create a new file in the directory
    - b. **pat** can rename the file
    - c. **bob** can list names in the directory
    - d. **pat** can access and write on the file
    - e. **bob** can access and write on the file

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

42. To change your own account password, use this exact command line:
    - *a.* **$ passwd cst8207.idallen.ca**
    - *b.* **$ passwd cst8207**
    - *c.* **$ passwd**
    - *d.* **$ passwd idallen-ubuntu**
    - *e.* **$ passwd 10.50.254.150**

43. What command displays the groups you are in?
    - *a.* **groups**
    - *b.* **groupprint**
    - *c.* **lstgroups**
    - *d.* **gpasswd**
    - *e.* **mkgroups**

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

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

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

47. Which file contains a list of possible kernels to load and run after POST?
    - *a.* **/load/kernel.conf**
    - *b.* **/etc/inittab**
    - *c.* **/boot/grub/grub.conf**
    - *d.* **/etc/fstab**
    - *e.* **/etc/init.d**

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

49. Given the following, can user **bird** in group **sesame** append to **foobar**?
    ```
    drwx--xrwx 2 root sesame 4096 Oct 7 14:00 .
    -rw------- 1 bird sesame 1024 Oct 4 14:05 foobar
    ```
    - *a.* No, because the directory is not accessible to **bird**
    - *b.* No, because **sesame** has no write permissions on **foobar**
    - *c.* No, because execute permissions are not set for **bird** on **foobar**
    - *d.* Yes, because **bird** has write permissions on **foobar**
    - *e.* Yes, because **bird** owns **foobar**

50. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr-x-wx--x 2 bob ted 60 Jan 1 1:00 foo
    -r-xr-xrwx 1 pat bg1  0 Jan 1 1:00 foo/bar
    ```
    - *a.* **bob** can list names in the directory
    - *b.* **pat** can access and write on the file
    - *c.* **pat** can rename the file
    - *d.* **bob** can create a new file in the directory
    - *e.* **bob** can access and write on the file

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

52. 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 -s /a/foo /b/new**
    - *c.* **ln /a/foo /b/new**
    - *d.* **ln -s /b/new /a/foo**
    - *e.* **ln /a/new /b/foo**

53. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr-xrwx--x 2 pat pgg 60 Jan 1 1:00 foo
    --w----r-x 1 bob bg2  0 Jan 1 1:00 foo/bar
    ```
    - *a.* **bob** can access and write on the file
    - *b.* **pat** can rename the file
    - *c.* **bob** can create a new file in the directory
    - *d.* **bob** can list names in the directory
    - *e.* **pat** can access and write on the file

54. 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.* **ls: nosuchfile: No such file or directory**
    - *b.* **nosuchfile**
    - *c.* **dog**
    - *d.* no output
    - *e.* **bash: 2>/dev/null: command not found**

55. Given my directory **dir** and my file **dir/f** owned by me, which permissions allow me to delete the file **dir/f** from the directory, but not change the content (data) in the file?
    a. Permissions **600** on directory **dir** and **300** on file **dir/f**.
    b. Permissions **300** on directory **dir** and **500** on file **dir/f**.
    c. Permissions **600** on directory **dir** and **500** on file **dir/f**.
    d. Permissions **700** on directory **dir** and **200** on file **dir/f**.
    e. Permissions **500** on directory **dir** and **500** on file **dir/f**.

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

57. In a directory containing one file named **dog**, what is the output on your screen after this command line: **1>/dev/null ls ***
    a. **ls: *: No such file or directory**
    b. **bash: 1>/dev/null: command not found**
    c. *****
    d. **dog**
    e. no output

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

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

60. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    d-wxrwx-w- 2 pat ted 60 Jan 1 1:00 foo
    -r-xr-xrwx 1 pat bg1  0 Jan 1 1:00 foo/bar
    ```
    a. **bob** can create a new file in the directory
    b. **bob** can access and write on the file
    c. **pat** can access and write on the file
    d. **pat** can rename the file
    e. **bob** can list names in the directory

61. Which command line displays all the non-hidden names in the current directory that contain the case-insensitive word **hi** (and no other names)?
    a. **echo ?[HhIi]?**   b. **echo *[hiHI]***
    c. **echo ?[HhIiHhIi]?**   d. **echo *[Hh][Ii]***
    e. **echo *(H,h,I,i)***

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

63. Can three different files have the same inode number on three different file systems?
    a. yes: if the files are all names for the same inode
    b. no: inode numbers are unique across all file systems
    c. no: you can't have inode numbers on three file systems
    d. yes: inode numbers are only unique inside a file system
    e. no: inode numbers only apply to directories, not files

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

65. When you use **chkconfig** to enable a service for Run Level 4, the service will:
    a. be started immediately, if the current Run Level is 4
    b. be enabled for Run Level 4 but will not be started
    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 stopped, then started, if the current Run Level is 4

66. When you show the type of file system inside an unmounted partition, what is displayed for a new, empty partition?
    a. **ntfs** file system   b. **ext2** file system (the default)
    c. **vfat** file system   d. **ext3** file system
    e. data

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

68. 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 sda5 sda7 sda8**
    d. **sda1 sda2 sda3 sda4 sda5 sda6 sda8**
    e. **sda1 sda2 sda3 sda4 sda6 sda7 sda8**

69. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    ```
    dr--r-x-w- 2 bob pgg 60 Jan 1 1:00 foo
    -rwxrwxr-x 1 bob bg2  0 Jan 1 1:00 foo/bar
    ```
    a. **pat** can access and write on the file
    b. **bob** can list names in the directory
    c. **bob** can access and write on the file
    d. **pat** can rename the file
    e. **bob** can create a new file in the directory

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

71. 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 directory with the name **/home**
    e. the current directory that was in use when the **at** job was created

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

73. Approximately how big is an **fdisk** partition size of **123456** *blocks*?
    a. **12.3 GB**   *b.* **12.3 MB**   *c.* **123 GB**
    d. **123 KB**   *e.* **123 MB**

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

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

76. 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. 320MB   *e.* 300MB

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

78. If user **pat** runs this command, who owns the new files **foo** and **bar**:
    ```
    $ sudo touch foo >bar
    ```
    a. **root** and **pat**   *b.* **pat** and **root**   *c.* **foo** and **bar**
    d. **root** and **root**   *e.* **pat** and **pat**

79. What command creates an **ext3** file system on *device*?
    a. **swapon -t ext3** *device*   *b.* **file -t ext3** *device*
    c. **fdisk -t ext3** *device*   *d.* **mkfs -t ext3** *device*
    e. **mount -t ext3** *device*

80. Given the following, can user **bird** in group **sesame** append to **foobar**?
    ```
    drwxrw-rwx 2 root sesame 4096 Oct 7 14:00 .
    -rw-rw-r-- 1 bird sesame 1024 Oct 4 14:05 foobar
    ```
    a. Yes, because **bird** owns **foobar**
    b. Yes, because **sesame** has write permissions on **foobar**
    c. No, because the directory is not accessible to **bird**
    d. Yes, because **bird** has write permissions on **foobar**
    e. No, because execute permissions are not set for **bird** on **foobar**

81. Other than **root**, 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 **root** can change the permissions
    c. anyone except user **foo**
    d. only user **foo**
    e. only users in group **bar**

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

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

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

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

86. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
```
d-w-rw---x 2 bob ted 60 Jan 1 1:00 foo
--w-rwxrwx 1 pat bg1  0 Jan 1 1:00 foo/bar
```
   a. **pat** can rename the file
   b. **bob** can list names in the directory
   c. **bob** can create a new file in the directory
   d. **pat** can access and write on the file
   e. **bob** can access and write on the file

87. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
```
d-w---xr-x 2 pat ted 60 Jan 1 1:00 foo
-rwxr-xrwx 1 pat bg2  0 Jan 1 1:00 foo/bar
```
   a. **bob** can rename the file
   b. **pat** can access and write on the file
   c. **bob** can list names in the directory
   d. **bob** can access and write on the file
   e. **bob** can create a new file in the directory

88. Given this successful command line (note the dot argument):
```
   cd /tmp ; mkdir dir ; cd dir ; chmod u-x .
```
   Which next command will execute without any "permission denied" errors?
   a. **ls .**   b. **ls ..**
   c. **ls /tmp/dir/..**   d. **ls /tmp/dir**
   e. **ls /tmp/dir/.**

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

90. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
```
d--x-wx--- 2 bob pgg 60 Jan 1 1:00 foo
-r-x-w-r-x 1 bob bg1  0 Jan 1 1:00 foo/bar
```
   a. **bob** can access and write on the file
   b. **pat** can access and write on the file
   c. **bob** can list names in the directory
   d. **pat** can rename the file
   e. **bob** can create a new file in the directory

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

92. To bring a background shell job into the foreground, type:
   a. **[Ctrl-D]**   b. **bg**   c. **[Ctrl-Z]**
   d. **fg**   e. **kill %1**

93. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
```
dr---wx--- 2 pat bg2 60 Jan 1 1:00 foo
-rw-rw-r-x 1 pat ted  0 Jan 1 1:00 foo/bar
```
   a. **bob** can access and write on the file
   b. **bob** can rename the file
   c. **pat** can rename the file
   d. **bob** can list names in the directory
   e. **pat** can create a new file in the directory

94. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
```
d-wx-w-rwx 2 pat bg1 60 Jan 1 1:00 foo
-rwxrwxrwx 1 pat ted  0 Jan 1 1:00 foo/bar
```
   a. **bob** can create a new file in the directory
   b. **pat** can create a new file in the directory
   c. **bob** can list names in the directory
   d. **bob** can rename the file
   e. **bob** can access and write on the file

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

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

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

98. 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 directly to Run Level 5
   c. goes through Run Levels 2, 3, and 4 before Level 5
   d. initializes to Run Level 1, then goes to Level 5
   e. initializes to Run Level 0, then goes to Level 5

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

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

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

102. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   ```
   d--x-----x 2 pat pgg 60 Jan 1 1:00 foo
   -r-xrwx-w- 1 bob bg1  0 Jan 1 1:00 foo/bar
   ```
   a. **bob** can list names in the directory
   b. **bob** can access and write on the file
   c. **bob** can create a new file in the directory
   d. **pat** can rename the file
   e. **pat** can access and write on the file

103. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   ```
   dr-xr-x-w- 2 bob pgg 60 Jan 1 1:00 foo
   -r-xrwxr-x 1 bob bg1  0 Jan 1 1:00 foo/bar
   ```
   a. **pat** can access and write on the file
   b. **bob** can list names in the directory
   c. **bob** can access and write on the file
   d. **bob** can create a new file in the directory
   e. **pat** can rename the file

104. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   ```
   dr-xrwx-wx 2 pat pgg 60 Jan 1 1:00 foo
   -r-xrwxr-x 1 bob bg2  0 Jan 1 1:00 foo/bar
   ```
   a. **bob** can create a new file in the directory
   b. **pat** can access and write on the file
   c. **pat** can rename the file
   d. **bob** can access and write on the file
   e. **bob** can list names in the directory

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

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

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

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

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

110. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
   ```
   d---rwx--x 2 pat pgg 60 Jan 1 1:00 foo
   --w----rwx 1 bob bg1  0 Jan 1 1:00 foo/bar
   ```
   a. **bob** can access and write on the file
   b. **pat** can rename the file
   c. **bob** can create a new file in the directory
   d. **bob** can list names in the directory
   e. **pat** can access and write on the file

111. 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 -s /two/bar /one/foo**
   c. **ln /two/bar /one/foo**
   d. **ln -s /one/foo /two/bar**
   e. **ln /one/foo /two/bar**

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

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

114. Dereference the following symlink **bar** into its equivalent absolute path:
     `ln -s ../b/../b/../../foo /tmp/a/b/bar`
     a. `/tmp/a/b/bar`   b. `/tmp/a/foo`   c. `/tmp/b/bar`
     d. `/tmp/foo`   e. `/tmp/b/foo`

115. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
     `dr---wx--x 2 bob ted 60 Jan 1 1:00 foo`
     `-r-xrwxrwx 1 pat bg1  0 Jan 1 1:00 foo/bar`
     a. **pat** can access and write on the file
     b. **pat** can rename the file
     c. **bob** can create a new file in the directory
     d. **bob** can list names in the directory
     e. **bob** can access and write on the file

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

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

118. Which command mounts a device partition on directory *dir*?
     a. `mount -t ext2` *dir* `/dev/sda1`
     b. `mount` *dir* `/dev/sda1`
     c. `mount /dev/sda1` *dir*
     d. `mount -t ext3 /mnt/sda1` *dir*
     e. `mount /mnt/sda1` *dir*

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

120. 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 **100** on directory **dir** and **500** on file **dir/bar**.
     e. Permissions **300** on directory **dir** and **400** on file **dir/bar**.

121. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
     `dr-xr-xrwx 2 pat bg1 60 Jan 1 1:00 foo`
     `-rwxrwxr-x 1 pat ted  0 Jan 1 1:00 foo/bar`
     a. **bob** can access and write on the file
     b. **pat** can create a new file in the directory
     c. **pat** can rename the file
     d. **bob** can list names in the directory
     e. **bob** can rename the file

122. If the current directory contains 10 visible files and 5 visible sub-directories, what is the output on your screen of this command: **ls -d */.**
     a. `*/.`
     b. no output
     c. 5 directory names
     d. an error message because `*/.` does not exist
     e. 15 pathnames

123. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
     `dr---wx--x 2 bob ted 60 Jan 1 1:00 foo`
     `--w--w-r-x 1 bob bg2  0 Jan 1 1:00 foo/bar`
     a. **bob** can list names in the directory
     b. **pat** can rename the file
     c. **pat** can access and write on the file
     d. **bob** can create a new file in the directory
     e. **bob** can access and write on the file

124. Dereference the following symlink **bar** into its equivalent absolute path:
     `ln -s ../b/../../a/./foo /tmp/a/b/bar`
     a. `/tmp/b/foo`   b. `/tmp/b/bar`   c. `/tmp/a/b/bar`
     d. `/tmp/foo`   e. `/tmp/a/foo`

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

126. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
     `dr-xrwx-wx 2 pat ted 60 Jan 1 1:00 foo`
     `-r-xr-xrwx 1 pat bg2  0 Jan 1 1:00 foo/bar`
     a. **pat** can access and write on the file
     b. **bob** can rename the file
     c. **bob** can access and write on the file
     d. **pat** can create a new file in the directory
     e. **bob** can list names in the directory

127. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
     `drw------x 2 pat ted 60 Jan 1 1:00 foo`
     `--w--w-r-x 1 pat bg1  0 Jan 1 1:00 foo/bar`
     a. **bob** can list names in the directory
     b. **bob** can rename the file
     c. **pat** can access and write on the file
     d. **bob** can access and write on the file
     e. **bob** can create a new file in the directory

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

129. What command line shows only your own processes, not all processes?
 a. **ps lxww**   *b.* **crontab**   *c.* **dmesg**
 d. **psmine**   *e.* **showall**

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

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

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

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

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

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

136. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
 d-wx---rw- 2 bob ted 60 Jan 1 1:00 foo
 ----rwxrwx 1 bob bg2 0 Jan 1 1:00 foo/bar
 a. **pat** can rename the file
 b. **pat** can access and write on the file
 c. **bob** can access and write on the file
 d. **bob** can list names in the directory
 e. **bob** can create a new file in the directory

137. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
 d-wxr-xrw- 2 bob pgg 60 Jan 1 1:00 foo
 -r-xrwxr-x 1 bob bg1 0 Jan 1 1:00 foo/bar
 a. **pat** can rename the file
 b. **pat** can access and write on the file
 c. **bob** can access and write on the file
 d. **bob** can create a new file in the directory
 e. **bob** can list names in the directory

138. Which command line would show the inode number of a file?
 a. **cat -l file**   *b.* **ls -i file**   *c.* **ls -l file**
 d. **cat -i file**   *e.* **find -i file**

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

140. 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 **700** on directory **dir** and **500** on file **dir/bar**.
 b. Permissions **500** on directory **dir** and **500** on file **dir/bar**.
 c. Permissions **700** on directory **dir** and **200** on file **dir/bar**.
 d. Permissions **600** on directory **dir** and **500** on file **dir/bar**.
 e. Permissions **600** on directory **dir** and **300** on file **dir/bar**.

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

142. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
drw-r-xrwx 2 pat bg1 60 Jan 1 1:00 foo
-rwxrwxr-x 1 pat ted 0 Jan 1 1:00 foo/bar
    - *a.* **pat** can rename the file
    - *b.* **bob** can rename the file
    - *c.* **pat** can create a new file in the directory
    - *d.* **bob** can access and write on the file
    - *e.* **bob** can list names in the directory

143. What command changes a user´s password?
    - *a.* **chpasswd**
    - *b.* **chsh**
    - *c.* **password**
    - *d.* **passwd**
    - *e.* **mkpasswd**

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

145. 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 ; cd protected ; chmod go+wx .**
    - *b.* **mkdir protected ; cd protected ; chmod go-x .**
    - *c.* **mkdir protected ; chmod 333 protected**
    - *d.* **mkdir protected ; chmod 777 protected**
    - *e.* **mkdir protected ; chmod 777 .**

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

147. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
d--xrwx-wx 2 bob ted 60 Jan 1 1:00 foo
-r-x-w-r-x 1 bob bg2 0 Jan 1 1:00 foo/bar
    - *a.* **bob** can access and write on the file
    - *b.* **pat** can rename the file
    - *c.* **bob** can list names in the directory
    - *d.* **bob** can create a new file in the directory
    - *e.* **pat** can access and write on the file

148. 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 foo:bar file ; chmod 077 file**
    - *b.* **chown bar file ; chown foo file ; chmod 333 file**
    - *c.* **chown foo:foo file ; chmod bar:bar file**
    - *d.* **chown foo:bar file ; chmod 440 file**
    - *e.* **chown foo file ; chown bar file ; chmod 440 file**

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

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

151. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
d--xr-x-w- 2 bob pgg 60 Jan 1 1:00 foo
--w----r-x 1 bob bg2 0 Jan 1 1:00 foo/bar
    - *a.* **bob** can access and write on the file
    - *b.* **pat** can rename the file
    - *c.* **bob** can list names in the directory
    - *d.* **bob** can create a new file in the directory
    - *e.* **pat** can access and write on the file

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

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

154. 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.* **-wx-wx-wx**
    - *d.* **--x--x--x**
    - *e.* **r--r--r--**

155. What command line would create a file system on the partition?
    - *a.* **fsck** *partition*
    - *b.* **mkswap** *partition*
    - *c.* **fdisk** *partition*
    - *d.* **mkfs** *partition*
    - *e.* **mount** *partition*

156. If you run this as you, to create two new files: **`$ sudo touch a >b`**
   a. this command fails due permissions
   b. **`root`** owns new file **`a`** – you own new file **`b`**
   c. you own both new files
   d. you own new file **`a`** – **`root`** owns new file **`b`**
   e. **`root`** owns both new files

157. Which GRUB command line displays the contents of the file **`foo`**?
   a. **`mount (hd0,0)/foo`**   *b.* **`ls (hd0,0)/foo`**
   c. **`p (hd0,0)/foo`**   *d.* **`cat (hd0,0)/foo`**
   e. **`type (hd0,0)/foo`**

158. What GRUB command will display the partitions on a disk?
   a. **`cat (hd0)`**   *b.* **`geometry (hd0)`**
   c. **`ls (hd0)`**   *d.* **`fdisk (hd0)`**
   e. **`mount (hd0)`**

159. User **`bob`** is in groups **`bg1`** and **`bg2`**. User **`pat`** is in group **`pgg`**.
   ```
   d--xr----x 2 bob ted 60 Jan 1 1:00 foo
   -r-x-w-rwx 1 pat bg2  0 Jan 1 1:00 foo/bar
   ```
   a. **`pat`** can rename the file
   b. **`bob`** can list names in the directory
   c. **`bob`** can access and write on the file
   d. **`pat`** can access and write on the file
   e. **`bob`** can create a new file in the directory

160. User **`bob`** is in groups **`bg1`** and **`bg2`**. User **`pat`** is in group **`pgg`**.
   ```
   d--x----w- 2 pat ted 60 Jan 1 1:00 foo
   --w-r-xrwx 1 pat bg2  0 Jan 1 1:00 foo/bar
   ```
   a. **`bob`** can access and write on the file
   b. **`pat`** can access and write on the file
   c. **`pat`** can rename the file
   d. **`bob`** can create a new file in the directory
   e. **`bob`** can list names in the directory

161. User **`bob`** is in groups **`bg1`** and **`bg2`**. User **`pat`** is in group **`pgg`**.
   ```
   dr-xrw-rwx 2 pat bg1 60 Jan 1 1:00 foo
   -rwxrwxrwx 1 pat ted  0 Jan 1 1:00 foo/bar
   ```
   a. **`bob`** can list names in the directory
   b. **`pat`** can create a new file in the directory
   c. **`bob`** can access and write on the file
   d. **`pat`** can rename the file
   e. **`bob`** can rename the file

162. User **`bob`** is in groups **`bg1`** and **`bg2`**. User **`pat`** is in group **`pgg`**.
   ```
   d--x--xrw- 2 bob pgg 60 Jan 1 1:00 foo
   -r-xrwx-w- 1 bob bg2  0 Jan 1 1:00 foo/bar
   ```
   a. **`bob`** can access and write on the file
   b. **`bob`** can list names in the directory
   c. **`pat`** can access and write on the file
   d. **`bob`** can create a new file in the directory
   e. **`pat`** can rename the file

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

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

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

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

167. User **`bob`** is in groups **`bg1`** and **`bg2`**. User **`pat`** is in group **`pgg`**.
   ```
   d-wx-w-rwx 2 pat bg2 60 Jan 1 1:00 foo
   -rwxrwxrwx 1 pat ted  0 Jan 1 1:00 foo/bar
   ```
   a. **`bob`** can create a new file in the directory
   b. **`pat`** can rename the file
   c. **`bob`** can access and write on the file
   d. **`bob`** can list names in the directory
   e. **`bob`** can rename the file

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

169. Given this successful command line (note the dot argument):
   ```
   cd /home/foo ; mkdir bar ; cd bar ; chmod a-x .
   ```
   Which of the following subsequent commands will execute without any "permission denied" errors?
   a. **`ls /home/foo/bar/.`**   *b.* **`ls .`**
   c. **`ls /home/foo/bar/..`**   *d.* **`ls ..`**
   e. **`ls /home/foo/bar`**

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

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

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

173. Dereference the following symlink **bar** into its equivalent absolute path:
        ln -s ../b/../../a/../foo /tmp/a/b/bar
    a. **/tmp/b/bar**   b. **/tmp/a/foo**   c. **/tmp/a/b/bar**
    d. **/tmp/foo**   e. **/tmp/b/foo**

174. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    d-w---xr-- 2 pat ted 60 Jan 1 1:00 foo
    -rwxrwxrwx 1 pat bg2 0 Jan 1 1:00 foo/bar
    a. **bob** can create a new file in the directory
    b. **bob** can access and write on the file
    c. **bob** can rename the file
    d. **pat** can access and write on the file
    e. **bob** can list names in the directory

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

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

177. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    d-w-rwx-wx 2 bob ted 60 Jan 1 1:00 foo
    -r-xrwxrwx 1 pat bg2 0 Jan 1 1:00 foo/bar
    a. **bob** can access and write on the file
    b. **bob** can create a new file in the directory
    c. **pat** can access and write on the file
    d. **pat** can rename the file
    e. **bob** can list names in the directory

178. User **bob** is in groups **bg1** and **bg2**. User **pat** is in group **pgg**.
    d-wx--x--x 2 bob ted 60 Jan 1 1:00 foo
    -r-xr-xrwx 1 pat bg2 0 Jan 1 1:00 foo/bar
    a. **bob** can list names in the directory
    b. **pat** can rename the file
    c. **bob** can create a new file in the directory
    d. **bob** can access and write on the file
    e. **pat** can access and write on the file

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