PRINT Name: _____

Test Version: `520` One-Answer Multiple Choice 171 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.

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

2. 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. **`bob`** can rename the file
   c. **`pat`** can rename the file
   d. **`bob`** can access and write on the file
   e. **`pat`** can create a new file in the directory

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

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

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

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

7. 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. **`bob`** can create a new file in the directory
   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 access and write on the file

8. 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. **`bob`** can list names in the directory
   c. **`pat`** can access and write on the file
   d. **`pat`** can rename the file
   e. **`bob`** can create a new file in the directory

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

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

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

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

13. The shadow password file is used:
   a. to keep a back-up of the main password file in case of corruption
   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 store secondary passwords for times when you forget your main one

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

15. 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. Yes, because **bird** has write permissions on **foo**
b. Yes; permissions don't apply because **bird** owns **foo**
c. No, because the directory is not accessible to **bird**
d. No, because execute permissions are not set for **bird** on **foo**
e. No, because **bird** has no write permission on the directory

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

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

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

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

20. 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.* **foo** *c.* **root and bob**
d. **bob** *e.* **root**

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

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

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

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 **100** on file **dir/bar**.
c. Permissions **300** on directory **dir** and **500** 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**.

25. 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. **1** *b.* **4** *c.* **10** *d.* **20** *e.* **2**

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

27. 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 foo:bar file ; chmod 440 file**
c. **chown foo:foo file ; chmod bar:bar file**
d. **chown bar file ; chown foo file ; chmod 333 file**
e. **chown foo file ; chown bar file ; chmod 440 file**

28. 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 **200** on directory **dir** and **200** on file **dir/c**.
b. Permissions **400** on directory **dir** and **400** on file **dir/c**.
c. Permissions **100** on directory **dir** and **200** on file **dir/c**.
d. Permissions **100** on directory **dir** and **100** on file **dir/c**.
e. Permissions **600** on directory **dir** and **700** on file **dir/c**.

29. 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 access and write on the file
b. **bob** can list names in the directory
c. **pat** can access and write on the file
d. **pat** can rename the file
e. **bob** can create a new file in the directory

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

31. 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. **bob** can list names in the directory
c. **pat** can rename the file
d. **pat** can access and write on the file
e. **bob** can create a new file in the directory

32. 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 list names in the directory
b. **bob** can access and write on the file
c. **pat** can rename the file
d. **pat** can access and write on the file
e. **bob** can create a new file in the directory

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

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

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

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

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

38. 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 list names in the directory
b. **bob** can access and write on the file
c. **pat** can rename the file
d. **pat** can access and write on the file
e. **bob** can create a new file in the directory

39. 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 **100** on directory **dir** and **100** on file **dir/c**.
b. Permissions **500** on directory **dir** and **400** on file **dir/c**.
c. Permissions **100** on directory **dir** and **200** on file **dir/c**.
d. Permissions **300** on directory **dir** and **500** on file **dir/c**.
e. Permissions **300** on directory **dir** and **300** on file **dir/c**.

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

41. 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/bob bar**
b. **usermod -d -m /home/bar bob**
c. **usermod -m -d /home/bar bob**
d. **usermod -m -d /home/foo /home/bar**
e. **usermod -dm /home/bar bob**

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

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

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

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

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

47. When a personal **crontab** job runs, the current working directory is set to:
    a. the directory with the name **/home**
    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 **/root**
    e. the system ROOT directory

48. 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. **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

49. 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. **pat** can rename the file
    b. **bob** can access and write on the file
    c. **pat** 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

50. 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 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

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

52. 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. **bob** can list names in the directory
    b. **bob** can access and write on the file
    c. **pat** can rename the file
    d. **pat** can access and write on the file
    e. **bob** can create a new file in the directory

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

54. 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. **pat** can access and write on the file
    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. **bob** can list names in the directory

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

56. 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

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

58. 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 access and write on the file
b. **pat** can rename 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

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

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

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

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

63. 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. **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. **pat** can access and write on the file
e. **bob** can list names in the directory

64. 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. **bob** can access and write on the file
b. **pat** can create a new file in the directory
c. **bob** can create a new file in the directory
d. **pat** can rename the file
e. **bob** can list names in the directory

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

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

67. 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 **400** on file **dir/bar**.
b. Permissions **100** on directory **dir** and **500** on file **dir/bar**.
c. Permissions **100** on directory **dir** and **300** on file **dir/bar**.
d. Permissions **500** on directory **dir** and **500** on file **dir/bar**.
e. Permissions **300** on directory **dir** and **200** on file **dir/bar**.

68. 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 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. **bob** can rename the file

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

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

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

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

73. 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. **`umask 300 ./myfile`** *d.* **`umask 400 myfile`**
    e. **`chmod r+u myfile`**

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

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

76. 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 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

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

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

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

80. 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, because **`bird`**'s group matches the group writable directory
    b. No, because **`bird`** cannot read the directory
    c. No, because the directory has no permissions for other users
    d. Yes; permissions don't apply because **`bird`** owns **`foo`**
    e. No, because **`bird`** has no permissions on **`foo`**

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

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

83. 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 **`500`** on directory **`dir`** and **`100`** on file **`dir/f`**.
    c. Permissions **`100`** on directory **`dir`** and **`200`** on file **`dir/f`**.
    d. Permissions **`600`** on directory **`dir`** and **`700`** on file **`dir/f`**.
    e. Permissions **`400`** on directory **`dir`** and **`400`** on file **`dir/f`**.

84. 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. **`bob`** can create a new file in the directory
    b. **`bob`** can access and write on the file
    c. **`bob`** can list names in the directory
    d. **`pat`** can rename the file
    e. **`pat`** can access and write on the file

85. 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 rename the file
    b. **`bob`** can access and write on the file
    c. **`pat`** can create a new file in the directory
    d. **`bob`** can list names in the directory
    e. **`pat`** can rename the file

86. 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 /home/foo/bar**
c. **ls /home/foo/bar/.** *d.* **ls /home/foo/bar/..**
e. **ls ..**

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

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

89. 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/foo** *c.* **/tmp/a/b/bar**
d. **/tmp/b/bar** *e.* **/tmp/a/foo**

90. 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. **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 access and write on the file
e. **bob** can list names in the directory

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

92. 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; permissions don't apply because **bird** owns **foo**
b. No, because execute permissions are not set for **bird** on **foo**
c. No, because **bird** has no write permission on the directory
d. Yes, because **bird** has write permissions on **foo**
e. No, because the directory is not accessible to **bird**

93. 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 **500** on file **dir/bar**.
c. Permissions **600** on directory **dir** and **300** on file **dir/bar**.
d. Permissions **700** on directory **dir** and **200** on file **dir/bar**.
e. Permissions **700** on directory **dir** and **500** on file **dir/bar**.

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

95. 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 **600** on directory **dir** and **700** on file **dir/bar**.
b. Permissions **300** on directory **dir** and **200** on file **dir/bar**.
c. Permissions **500** on directory **dir** and **600** on file **dir/bar**.
d. Permissions **100** on directory **dir** and **100** on file **dir/bar**.
e. Permissions **400** on directory **dir** and **400** on file **dir/bar**.

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

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

98. 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. **pat** can create a new file in the directory
b. **bob** can list names in the directory
c. **bob** can rename the file
d. **bob** can access and write on the file
e. **bob** can create a new file in the directory

99. 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. **bob** *b.* **root and bob** *c.* **root**
    d. **root and foo** *e.* **foo**

100. 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. **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 access and write on the file

101. 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 has the date and time in it
    d. the personal crontab only runs commands once
    e. the personal crontab also has the userid in it

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

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

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

105. 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. Yes; permissions don't apply because **bird** owns **foo**
    b. No, because the directory is not accessible to **bird**
    c. No, because **bird** has no write permissions on **foo**
    d. No, because execute permissions are not set for **bird** on **foo**
    e. No, because **bird** has no write permission on the directory

106. 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 is not accessible to **bird**
    c. No, because the directory has no write permissions for others
    d. Yes, because **bird** has write permissions on **foo**
    e. Yes; permissions don't apply because **bird** owns **foo**

107. 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 rename the file
    c. **bob** can access and write on the file
    d. **bob** can list names in the directory
    e. **pat** can create a new file in the directory

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

109. 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. **default=(hd0,0)** *b.* **root=(hd0,0)**
    c. **root (hd0,0)** *d.* **title (hd0,0)**
    e. **kernel (hd0,0)**

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

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

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

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

114. 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. **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

115. 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 multi-file directory containing individual uncompressed files
d. a single-file that contains individual uncompressed files
e. a single-file that contains individual compressed files

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

117. 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. No, because the directory is not accessible to **bird**
b. No, because **foo** has no write permissions for **bird**
c. No, because the directory has no write permissions for **bird**
d. Yes; permissions don't apply because **bird** owns **foo**
e. Yes, because **bird** has read permissions on **foo**

118. 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 rename the file
b. **bob** can create a new file in the directory
c. **bob** can list names in the directory
d. **bob** can access and write on the file
e. **pat** can access and write on the file

119. 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 **300** on directory **dir** and **200** on file **dir/foo**.
b. Permissions **500** on directory **dir** and **600** on file **dir/foo**.
c. Permissions **600** on directory **dir** and **700** on file **dir/foo**.
d. Permissions **400** on directory **dir** and **400** on file **dir/foo**.
e. Permissions **100** on directory **dir** and **100** on file **dir/foo**.

120. What command displays the groups you are in?
a. **lstgroups** *b.* **mkgroups** *c.* **groups**
d. **gpasswd** *e.* **grouprint**

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

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

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

124. 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.* **rw-** *c.* **-wx** *d.* **--x** *e.* **r-x**

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

126. 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 list names in the directory
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 access and write on the file

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

128. 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 **200** on directory **dir** and **200** on file **dir/bar**.
   c. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
   d. Permissions **100** on directory **dir** and **100** on file **dir/bar**.
   e. Permissions **100** on directory **dir** and **200** on file **dir/bar**.

129. 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 **300** on directory **dir** and **500** on file **dir/f**.
   b. Permissions **600** on directory **dir** and **500** on file **dir/f**.
   c. Permissions **500** on directory **dir** and **500** on file **dir/f**.
   d. Permissions **600** on directory **dir** and **300** on file **dir/f**.
   e. Permissions **700** on directory **dir** and **200** on file **dir/f**.

130. The **minimum** permissions you need to move 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. **wx** on **a**, **wx** on **b**, **r** on **foo**
   d. **rwx** on **a**, **wx** on **b**, **rw** on **foo**
   e. **wx** on **a**, **wx** on **b**, **w** on **foo**

131. 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. **bob** 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. **pat** can access and write on the file

132. 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. Yes, because **bird** matches the writable other permissions
   b. No, because the directory is not accessible to **bird**
   c. No, because **bird** has no write permission on the directory
   d. Yes, because **bird** has full permissions on **foo**
   e. Yes; permissions don't apply because **bird** owns **foo**

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

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

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

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

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

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

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

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

141. 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; permissions don't apply because **bird** owns **foo**
b. No, because the directory has no write permissions for **bird**
c. Yes, because **bird** has write permissions on **foo**
d. No, because **foo** has no read permissions for **bird**
e. No, because the directory is not readable by **bird**

142. 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. **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

143. 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. **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. **pat** can access and write on the file

144. 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 create a new file in the directory
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. **pat** can rename the file

145. 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. **bob** can create a new file in the directory
b. **pat** can access and write on the file
c. **bob** can access and write on the file
d. **pat** can rename the file
e. **bob** can list names in the directory

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

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

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

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

150. 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. **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

151. 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 access and write on the file
c. **bob** can list names in the directory
d. **pat** can create a new file in the directory
e. **bob** can rename the file

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

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

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

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

156. 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 create a new file in the directory
   b. **pat** can rename the file
   c. **bob** can access and write on the file
   d. **pat** can access and write on the file
   e. **bob** can list names in the directory

157. 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. **pat** can rename the file
   b. **bob** can access and write on the file
   c. **bob** can rename the file
   d. **pat** can create a new file in the directory
   e. **bob** can list names in the directory

158. 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. **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

159. 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. **x** on **a**, **wx** on **b**, **r** on **foo**
   c. **wx** on **a**, **wx** on **b**, **rw** on **foo**
   d. **rwx** on **a**, **wx** on **b**, none on **foo**
   e. **rx** on **a**, **wx** on **b**, **w** on **foo**

160. 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 list names in the directory
   b. **pat** can access and write on the file
   c. **bob** can rename the file
   d. **bob** can create a new file in the directory
   e. **bob** can access and write on the file

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

162. 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 **500** on directory **dir** and **200** on file **dir/bar**.
   b. Permissions **200** on directory **dir** and **200** on file **dir/bar**.
   c. Permissions **600** on directory **dir** and **700** on file **dir/bar**.
   d. Permissions **400** on directory **dir** and **400** on file **dir/bar**.
   e. Permissions **500** on directory **dir** and **100** on file **dir/bar**.

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

164. 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 access and write on the file
   c. **bob** can list names in the directory
   d. **bob** can rename the file
   e. **pat** can create a new file in the directory

165. 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. **pat** can access and write on the file
   b. **bob** can rename the file
   c. **bob** 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

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

167. 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 list names in the directory
   b. **`pat`** can create a new file in the directory
   c. **`pat`** can rename the file
   d. **`bob`** can rename the file
   e. **`bob`** can access and write on the file

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

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

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

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

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