

# CST8102 – Operating System Fundamentals (Linux)

## Midterm #1

**Date: February 27 2014**  
**60 minutes**

**Professor: Norman Han**

**Name:** \_\_\_\_\_

**Student #:** \_\_\_\_\_

**Signature** \_\_\_\_\_

- Answer all questions on scantron card by selecting the letter representing the BEST choice.
- Read each question carefully before answering
- Ensure you understand the question properly.
  
- WHEN YOU FINISH THIS TEST.....
  1. Make sure your NAME is printed clearly on scantron card and this page
  2. REMAIN QUIETLY IN YOUR SEAT
  3. Put up your hand.
  4. Your test will be collected shortly.
  5. You may QUIETLY leave when permitted.

1) Identify the `root` user's home directory in Linux.

- A. `/`
- B. `/root/home`
- C. `/home/root`
- D. `/root`
- E. None of the above

2) The Linux command that allows for deleting a directory, but only if it is empty: \_\_\_\_\_.

- A. `mv`
- B. `del`
- C. `rm`
- D. `rmdir`
- E. None of the above

3) The Linux command that will print the current working directory \_\_\_\_\_.

- A. `pwd`
- B. `cd`
- C. `mkdir`
- D. `ls`
- E. None of the above

4) Which one of the following will delete directory `~/test1` and files stored in it?

- A. `rmdir ~/test1`
- B. `rm ~/test1`
- C. `rmdir -p ~/test1`
- D. `rm -r ~/test1`
- E. None of the above

5) The command that is used to change directory to `test1`, a sub-directory of `user1`'s home directory, `/home/user1`, given the command prompt listed below:

**user1@localhost: /etc\$**

- A. `cd /test1`
- B. `cd ./test1`
- C. `cd ../home/user1/test1`
- D. `cd home/user1/test1`
- E. None of the above

6) The command that will list all files in long format in current working directory, including hidden files \_\_\_\_\_.

- A. `dir`
- B. `ls -a`
- C. `ls -l`
- D. `ls -la`
- E. None of the above

7) Logged in as the default user, what is the command used to set root user's password?

- A. `password root`
- B. `set password`
- C. `sudo passwd root`
- D. `su - root`
- E. None of the above

8) Being root, which Linux command that will copy directory (including files and subdirectories in it), **/home/user1/dir1** , to **/root**?

- A. `cp /home/user1/dir1 /root`
- B. `cp -r /home/user1/dir1 /root`
- C. `cp -b /home/user1/dir1 /root`
- D. `cp --parent /home/user1/dir1 /root`
- E. None of the above

9) Identify the Linux command that renames **~/oldfile** to **~/newfile**

\_\_\_\_\_

- A. `mv ~/oldfile ~/newfile`
- B. `cp ~/oldfile ~/newfile`
- C. `ln ~/oldfile ~/newfile`
- D. `touch ~/oldfile ~/newfile`
- E. None of the above

10) Which of the following Linux commands prevents you from accidentally overwriting a file when you redirect output to a file?

- A. `echo $PATH`
- B. `set -C`
- C. `umask`
- D. `set +o noclobber`
- E. None of the above

11) To properly restart the system in 30 minutes from command line in Linux, you should: \_\_\_\_\_

- A. Log in as root and type: `shutdown -h now`
- B. Log in as root and type: `shutdown -r +30`
- C. Log in as root and type: `restart 30`
- D. Turn the power off and walk away.
- E. None of the above

12) The command that will change the primary prompt to the following:

**`user@localhost:~$`**

- A. `echo "user@localhost:~$"`
- B. `PS1="\u@\h:\w$"`
- C. `PS2="\u@\h:\w$"`
- D. `echo $PS`
- E. None of the above

13) The command that displays the name of current shell \_\_\_\_\_.

- A. `echo $SHELL`
- B. `cat /etc/shells`
- C. `uname -r`
- D. `cat /etc/fstab`
- E. None of the above

14) Identify the Linux command used to display the inode number of **`/etc/fstab`**

- A. `ls /etc/fstab`
- B. `ls -l /etc/fstab`
- C. `ls -a /etc/fstab`
- D. `ls -i /etc/fstab`
- E. None of the above

15) Which of the following commands will create a hard link to **`/etc/fstab`** in user's home directory?

- A. `ln -s/etc/fstab ~/fstab`
- B. `ln /etc/fstab ~/fstab`
- C. `cat /etc/fstab`
- D. `touch /etc/fstab`
- E. None of the above

16) Which of the following is **NOT** true about hard link in Linux?

- A. You may create multiple hard links to the same file
- B. All hard links have the same inode number as the original file's
- C. All hard links become meaningless (orphan link) if the original file is removed
- D. The physical data of the file will not be deleted from the disk until all hard links are deleted.
- E. None of the above

Answer question **17** to **21** based on the following:

Log into Linux as **root**, and run the following commands:

```
mkdir ~/test1
cd ~/test1
mkdir -p shared/plan
touch f1 f2 f3
cp f1 f2 f3 shared
cp f3 f4
mv f1 f2 f4 shared/plan
cp f3 ./shared
cd shared/plan
cd ../../
pwd
rmdir -p ~/test1/shared/plan
```

17) How many regular files are left in **~/test1** after executing the above commands?

- A. 0
- B. 1
- C. 2
- D. 3
- E. None of the above

18) How many regular files are left in **~/test1/shared/plan** after executing the above commands?

- A. 1
- B. 2
- C. 3
- D. 4
- E. None of the above

19) How many directories and subdirectories have been created (including deleted directories if there are any)?

- A. 2
- B. 3
- C. 4
- D. 5
- E. None of the above

20) What is the output of **pwd** command ?

- A. /
- B. /root
- C. /root/test1
- D. /root/test1/shared
- E. None of the above

21) How many directories and subdirectories have been successfully removed?

- A. 0
- B. 1
- C. 2
- D. 3
- E. None of the above

22) Which of the following are all valid basic file permissions under Linux?

- A. Read, Write, Hidden, Read Only, Execute
- B. Read, Hidden, Execute
- C. Read, System, Hidden, Archive
- D. Read, Write, Execute
- E. None of the above

23) What are the permissions in octal mode of the file **fileone**, given the file listing below:

```
-rwxrw--w- 2 steven students 14 Feb 27 12:37 fileone
```

- A. 652
- B. 651
- C. 762
- D. 732
- E. None of the above

24) Given the file permission **rw-rw-r--** for a file named **script1** in current directory, identify the **chmod** command that adds execute permissions for owner and removes read permission from others:

- A. `chmod 740 script1`
- B. `chmod 750 script1`
- C. `chmod 760 script1`
- D. `chmod 770 script1`
- E. None of the above

25) After successfully executing the following command,

```
chmod u=rwx,go=rx ~/script2
```

What are the permissions given to **~/script2**?

- A. `rwxr-xr-x`
- B. `rwxrwxr-x`
- C. `rw--wx-wx`
- D. `rwx-w--w-`
- E. None of the above

26) Login as root, identify the Linux command used to give everyone full access permission to directory **/public**.

- A. `chmod 777 /public`
- B. `chmod ugo=rwx /public`
- C. `chmod a+rwx /public`
- D. `chmod ugo+rwx /public`
- E. All of the above

27) Which of the following statements about minimum permissions needed to move a file in Linux is true?

- A. For the source and destination directories: write and execute, for the file: None
- B. For the source and destination directories: write and execute, for the file: write
- C. For the source directory: execute, for the destination directory: write and execute, for the file: read
- D. For the source and destination directories: read, write and execute, for the file: read
- E. None of the above

Given file listing as the following,

```
-rwxr-x-w- 2 user101 user101 127 Oct 27 15:41 filetwo
```

Answer question 28 to 29

28) What are owner and group of **filetwo**?

- A. owner: user101 group: users
- B. owner: user101 group: user101
- C. owner: user101 group: root
- D. owner: root group: users
- E. None of the above

29) Log in as **root**, which of the following is the right command to change **filetwo**'s owner to **root** and group to **students**? (Assume **students** group exists)

- A. `chown filetwo root students`
- B. `chgrp root.students filetwo`
- C. `chown root.students filetwo`
- D. `chown students.root filetwo`
- E. None of the above

30) With an umask of 011, which will be the default file permission?

- A. `rw-r-xr-x`
- B. `rw-r--r--`
- C. `rw-rw-rw-`
- D. `rw-rw-rw-`
- E. None of the above

31) To set default directory permission to **rwxr--r--**, you should set umask to \_\_\_\_\_

- A. 033
- B. 022
- C. 744
- D. 633
- E. None of the above

Answer question 32 to 36 based on the output of `fdisk -l /dev/sdb`:

Disk /dev/sdb: 5368 MB, 5368709120 bytes  
255 heads, 63 sectors/track, 652 cylinders  
Units = cylinders of 16065 \* 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
/dev/sdb1	*	1	128	1028128+	83	Linux
/dev/sdb2		129	384	2056320	5	Extended
/dev/sdb3		385	449	52211+	82	Linux
/dev/sdb5		129	193	522081	83	Linux
/dev/sdb6		194	270	618471	82	Linux swap/ Solaris
/dev/sdb7		271	360	722893+	83	Linux

32) How many more primary partitions can be created without deleting an existing partition or adding a new hard drive.

- A. 0
- B. 1
- C. 2
- D. 3
- E. Many

33) List all primary partitions that have been created\_\_\_\_\_.

- A. /dev/sdb1
- B. /dev/sdb1, /dev/sdb2
- C. /dev/sdb1, /dev/sdb2, /dev/sdb3
- D. /dev/sdb1, /dev/sdb3
- E. None of the above

34) How many logical drives have been created?

- A. 1
- B. 2
- C. 3
- D. 4
- E. None of the above

35) The extended partition is \_\_\_\_\_.

- A. /dev/sdb1
- B. /dev/sdb2
- C. /dev/sdb3
- D. /dev/sdb5
- E. None of the above

36) How many more logical drives can be created without deleting an existing partition or adding a new hard drive.

- A. 0
- B. 1
- C. 2
- D. 3
- E. Many

37) What is the order of execution to prepare a partition for data storage in Linux?

- A. mount, mkfs, fsck, fdisk
- B. fdisk, fsck, mkfs, mount
- C. fdisk, mkfs, fsck, mount
- D. fsck, fdisk, mount, mkfs
- E. None of the above

38) The Linux command that displays all mounted devices \_\_\_\_\_.

- A. mount
- B. cat /etc/fstab
- C. fdisk -l
- D. fsck
- E. None of the above

39) The command that will clear the command history list in bash shell?

- A. echo \$HISTSIZE
- B. history -c
- C. echo \$PATH
- D. echo \$SHELL
- E. None of the above

40) The command that will display the size of the command history list in bash shell?

- A. history size
- B. echo \$HISTFILE
- C. echo \$PATH
- D. echo \$HISTSIZE
- E. None of the above

41) Which of the following command will search for binary, source code and manual page for **rm** command?

- A. `which rm`
- B. `whereis rm`
- C. `locate rm`
- D. `man rm`
- E. None of above

42) What is the command used to save the changes and quit in **vim**?

- A. `:w`
- B. `:wq`
- C. `:q`
- D. `:q!`
- E. None of the above

43) The **vim** command used to delete from the cursor to the end of a line: \_\_\_\_\_.

- A. `d$`
- B. `dw`
- C. `d^`
- D. `2dd`
- E. None of above

44) In order to ensure the proper execution of the operating system, we must be able to distinguish between the execution of operating-system code and user-defined code. So we need two separate modes of operation: \_\_\_\_\_ .

- A. user mode and kernel mode
- B. single-user mode and multi-user mode
- C. time-shared mode and multiprogrammed mode
- D. virtual memory mode and physical memory mode
- E. None of the above

45) \_\_\_\_\_ abstracts main memory into a large, uniform array of storage, separating logical memory as viewed by the user from physical memory, which enables users to run programs that are larger than actual physical memory.

- A. Cache
- B. Hard disk
- C. Main memory
- D. Virtual Memory
- E. None of the above