

CST8102 – Operating System Fundamentals (Linux)

Midterm #1

60 minutes

Professor: Norman Han

Name: _____

Student #: _____

Signature _____

Date: _____

- 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. Hand in your scantron card and test papers
 3. 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 would **NOT** place you in your home directory?

- A. `cd`
- B. `cd ~`
- C. `cd ~/username`
- D. `cd /home/username`
- 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. `ls -ld`
- B. `ls -al`
- C. `ls -l`
- D. `ls -i`
- 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, **/root/dir1** , to **/home/user1**?

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

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

- A. `rm ~/oldfile ~/newfile`
- B. `mv ~/oldfile ~/newfile`
- C. `cp ~/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. `set -C`
- B. `echo $PATH`
- C. `umask`
- D. `chmod 777 /`
- E. None of the above

11) To properly shutdown the system in immediately from command line in Linux, you should: _____

- A. Log in as root and type: `shutdown -r now`
- B. Log in as root and type: `shutdown -h now`
- C. Log in as root and type: `restart now`
- 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. `echo $PS`
- C. `PS1="\u@\h:\w$"`
- D. `PS2="\u@\h:$"`
- 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 soft link to **`/etc/fstab`** in user's home directory?

- A. `ln /etc/fstab ~/fstab`
- B. `ln -s /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 -p ~/2016/tests
cd ~/2016/tests
mkdir test1 test2
touch f1 f2 f3 f4
cp f1 f2 test1
cp f3 f4 ./test2
mv f1 test1/f3
cp f3 test2
cd ../../
pwd
rmdir ~/2016/tests/test1
rm -r ~/2016/tests
```

17) How many regular files are left in **~/2016/tests/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 **~/2016/tests/test2** 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)?

- 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/2016
- D. /root/2016/tests
- 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, Write, Execute
- C. Read, System, Hidden, Archive
- D. Read, Hidden, Execute
- E. None of the above

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

```
-rwxr-xr-- 2 steven students 16 Oct 21 12:37 fileone
```

- A. 420401020
- B. 651
- C. 653
- D. 754
- 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 group and removes read permission from others:

- A. `chmod 750 script1`
- B. `chmod 760 script1`
- C. `chmod 770 script1`
- D. `chmod 774 script1`
- E. None of the above

25) After successfully executing the following command,

```
chmod ug=rw,o=r ~/script2
```

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

- A. `rw-rw-r--`
- B. `rw-r--r--`
- C. `rw--wx-wx`
- D. `rw-x-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 david students 127 Oct 21 12:41 filetwo
```

Answer question 28 to 29

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

- A. owner: david group: students
- B. owner: students group: david
- C. owner: root group: root
- D. owner: david group:david
- E. None of the above

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

- A. chown filetwo faculty.jack
- B. chgrp jack faculty paul
- C. chown jack faculty filetwo
- D. chown jack.faculty filetwo
- E. None of the above

30) With an umask of 033, which will be the default file permission?

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

31) To set default directory permission to **rwxr-xr--**, you should set umask to _____

- A. 022
- B. 023
- C. 754
- D. 054
- E. None of the above

32) 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

33) _____command that will locate the binary, source code, and manual page files for a command. It searches for files related to a utility by looking in a list of standard Linux places (*/bin, /etc, /usr/bin, /usr/local/bin, etc.*) instead of using your searching path (**\$PATH**)

- A. which
- B. type
- C. whereis
- D. history
- E. None of the above

34) 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

35) What is the command used to show the size of command history list in bash shell?

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

Answer question 36 to 40 based on the output of **fdisk -l /dev/sdb**:

```

Disk /dev/sdb: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders, total 4194304 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x355dc252

```

Device	Boot	Start	End	Blocks	Id	System
/dev/sdb1		2048	821247	409600	83	Linux
/dev/sdb2		821248	1435647	307200	82	Linux swap/Solaris
/dev/sdb3		1435648	3483647	1024000	5	Extended
/dev/sdb5		1437696	1847295	204800	83	Linux
/dev/sdb6		2465792	3284991	409600	83	Linux

36) 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

37) 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/sdb2, /dev/sdb5, /dev/sdb6
- E. None of the above

38) How many logical drives have been created?

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

39) The extended partition is _____.

- A. /dev/sdb1
- B. /dev/sdb2
- C. /dev/sdb3
- D. /dev/sdb6
- E. None of the above

40) 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

- 41) What is the command that is used to display active swap partitions in Linux?
- A. mkswap
 - B. fdisk -l
 - C. swapon -s
 - D. cat /etc/fstab
 - E. None of the above
- 42) The Linux command that displays all mounted devices _____.
- A. mount
 - B. cat /etc/fstab
 - C. fdisk -l
 - D. fsck
 - E. None of the above
- 43) A running instance of a program, including the instructions and all associated data, is called: _____
- A. A process
 - B. An interrupt
 - C. A driver
 - D. A software
 - E. None of the above
- 44) _____ 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
- 45) 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 userdefined 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

46) A microkernel is a kernel _____.

- A. containing many components that are optimized to reduce resident memory size
- B. that is compressed before loading in order to reduce its resident memory size
- C. that is compiled to produce the smallest size possible when stored to disk
- D. that is stripped of all nonessential components
- E. None of the above

47) As a process executes, it changes state. In what state the process is waiting for some event to occur (such as an I/O completion or reception of a signal)?

- A. waiting
- B. running
- C. new
- D. ready
- E. None of the above

48) What is the command used to undo the last action in **vim**?

- A. p
- B. u
- C. c
- D. r
- E. None of the above

49) What is the command used to quit without saving in **vim**?

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

50) 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