Linux OS and Programming - Assessment

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Points: 47/90

Introduction to Linux and Commands

1

What does FSF stand for and who started it?
(1/1 Points)

- File System Factory, Richard Stallman
- Free Software Foundation, Richard Stallman ✓
- Free Software Foundation, Linus Torvalds
- File System Factory, Richard Stallman

2

Which all commands can be used to create the below file?

$ ls -l testfile.txt
prwxrwx--- 1 40010753 1049089 0 Sep 30 15:20 testfile.txt

a. touch testfile.txt
b. mkfifo testfile.txt
c. cat > testfile.txt
(0/2 Points)

- only a
- only b ✓
- a & b
- a, b & c

3

Which command performs these actions in the given order:
1. Over writes content of file2.txt with contents of file1.txt & prints content of file1.txt to terminal
2. Appends content of file1.txt to the contents of file2.txt & prints content of file1.txt to terminal
(2/2 Points)

- cat file1.txt | tee file2.txt ; cat file1.txt | tee -a file2.txt ✓
- cat file1.txt > file2.txt ; cat file1.txt >> file2.txt
- cat file1.txt | tee -a file2.txt ; cat file1.txt | tee file2.txt
- cat file1.txt >> file2.txt ; cat file1.txt > file2.txt

4

After issuing the below command, this is the result.
$ ls -l
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:30 fail.png
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:30 File.zip (http://file.zip)
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:29 File1.doc
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:31 file1.sh (http://file1.sh)
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:29 file1.txt
-rw-r--r-- 1 40010753 1049089 0 Sep 30 15:30 paint.png

What will this command do
$ ls [!F]* [F]*
(2/2 Points)

- Lists all the files which do not have 'F' as first letter in their name
- Lists all the files which have 'F' as first letter in their name
- List all the files which have letter 'F' in their name
- List all the files in the directory ✓

5

You receive information that one of your servers was cracked, the cracker probably
replaced the ls command. Which of the following commands would you use to list the contents of the directory?
(1/1 Points)

- ls
- list
- echo * ✓
- echo $@

6

There is a file named "app.log" in a /var directory and its content is changing continuously. You are asked to monitor the contents of this file from a terminal. Which single command would you issue to monitor the file considering after the below command
$ cd ~
(0/1 Points)

- tail -a /var/app.log
- tail -f /var/app.log ✓
- tail -a app.log
- tail -f app.log

7

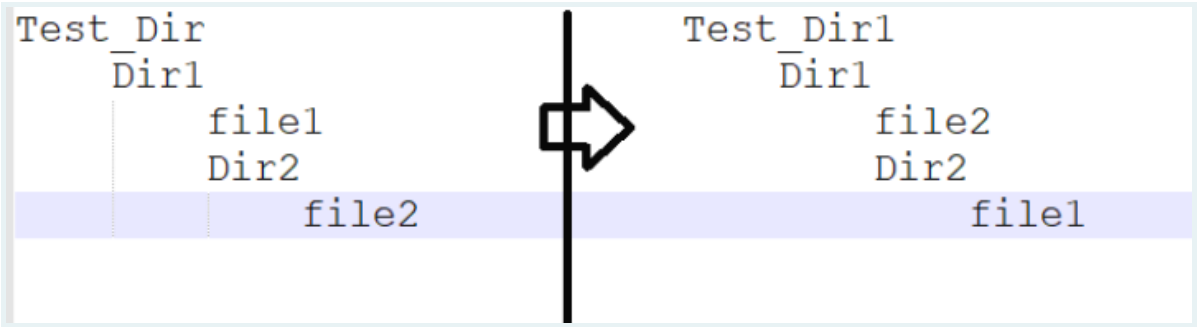
Which command would you type to list your files in the increasing order of their size with all properties?
(1/1 Points)

- ls -lsr
- ls -lSR
- ls -lSr ✓
- ls -lsR

8

User has issued the below commands
$ cp -r Test_Dir Test_Dir1
$ cd Test_Dir1/Dir1/Dir2
$
Which commands will you issue to make the Test_Dir1 as shown in image

Read the Image as
Test_Dir contains Dir1 directory
Dir1 contains file1 file, Dir2 directory
Dir2 contains file2 file
(3/3 Points)



- cp ../file2 file2; cp file1 ../file2
- mv ../file2 file1; mv file1 ../file2
- cp file2 ../file2; mv ../file1 file1; rm file2 ✓
- mv Dir1/file1 Dir1/file2; mv Dir2/file2 Dir2/file1

9

Which directory contains the system kernel Image?
(1/1 Points)

- /kernel
- /boot ✓
- /bin
- /proc

10

Which of the following represents read, write, and execute permissions for owner and read and execute for all others?
(1/1 Points)

- 755 ✓
- 022
- 733
- 557

11

What is the process id of init process?
(1/1 Points)

- 1 ✓
- 6
- 4
- 0

✗

12

Which of the following is an example for relative path?
(0/1 Points)

- cd ~/Documents
- ls –al ../test ✓
- ls /home/angie
- ls /usr/include/stdio.h

✗

13

A user wants to add a variable to the configuration and make it available for all users only at the launch of their bash.
In which file should he add this variable?
(0/1 Points)

- ~/.bashrc
- /etc/bashrc

- ~/.profile
- /etc/profile ✓

14

What does following command do?
$ cat /dev/null > ~/.bash_history
(1/1 Points)

- Creates a file named "/dev/null" and writes contents of .bash_history into it.
- Appends content of "/dev/null" file to the content of .bash_history file
- Clears the content of .bash_history file ✓
- Writes line "/dev/null" to .bash_history file

✗

15

Which of the following statement is true ?
(0/2 Points)

- echo $$ return PID of login shell and echo $? return status of last command ✓
- echo $$ return status of last command and echo $? return PID of login shell
- echo $$ and echo $? return some integer value of no significance
- All of the statement

16

What would you type in the terminal to make the shell script named my_script.sh to be executable only by you?
(0/1 Points)

- ./myscript.sh (http://myscript.sh)
- chmod +x my_script.sh
- chmod u+x my_script.sh ✓
- chmod 777 myscrit.sh (http://myscrit.sh)

17

What is context switch?
(1/1 Points)

- Process switches from user mode to kernel mode
- Process switches from kernel mode to user mode
- Suspending the execution of current running process and executing another process that is present which is in ready state ✓
- None of these

18

Which metacharacter matches any single character?
(0/1 Points)

- !
- *
- ? ✓

.

19

In _____ state of a process, the process will be terminated and the PCB will still be available with entry in process entry table.
(1/1 Points)

Blocked

Deamon

Zombie ✓

Running

20

Which of the following would cause cmd2 to be run independently of cmd1?
(0/1 Points)

cmd1 ; cmd2 ✓

cmd1 | cmd2

cmd1 && cmd2

cmd1 || cmd2

21

A shell script named my_script.sh contains the below lines:

```
--------------------
#!/bin/bash
function fun_A
{
  echo -n "$1"
}
fun_A Hi
echo -n "$1"
----------------------
```

What would be printed to console on invoking this command?
$ ./my_script.sh Hello There
(0/2 Points)

- Hi Hello There
- Hello Hi
- HiHello There
- HiHello ✓

22

Bash stands for
(1/1 Points)

- Bourne Shell
- Bourne Advanced Shell
- Bourne Again Shell ✓
- Bourne Ascii shell

23

_____ Command can be used to print all environment variables starting with 'H'
(2/2 Points)

- printenv | grep $H
- printenv | grep H$
- printenv | grep ^H ✓
- printenv | grep H*

24

Meaning of command1 || command2 is
(1/1 Points)

- command2 executes only on success of command1
- Any one command executes
- command2 executes only on failure of command1 ✓
- Output of command1 is fed as input to command2

✗

25

Which command would inform the info about dynamically linked library dependencies of the executable file?
(0/1 Points)

- file all.out
- ldd all.out ✓

- ./all.out
- objdump -t all.out

26

_____ Command is used to know the absolute path of external command
(1/1 Points)

- type
- which ✓
- file
- man

27

Imagine that you just joined a development team that uses Git for version control and collaboration.
To start contributing to the project, what Git operation would you most likely invoke first?
(1/1 Points)

- git clone <REPO_URL> ✓
- git init
- git checkout
- git pull

28

Which command can be used to update the commit message?
(2/2 Points)

- git commit -m "new message"
- git commit --amend -m "new message" ✓
- git commit --update -m "new message"
- git commit --amend --update "new message"

✗

29

Which of the following is not true?
a. Git is a version Control system
b. GitHub is a service provider to host git repositories
c. Git is a Centralized version control system
d. Staging area is a feature of git
(0/2 Points)

- a, b & d
- only d
- b & d
- only c ✓

30

A developer is creating an application for a customer based on C and he doesn't want to share his code and hence decides to create a library for his code and give to customer.
Which below method should he choose so that he can give a single executable file to the customer?
(0/1 Points)

- Static library linking ✓
- Dynamic library linking

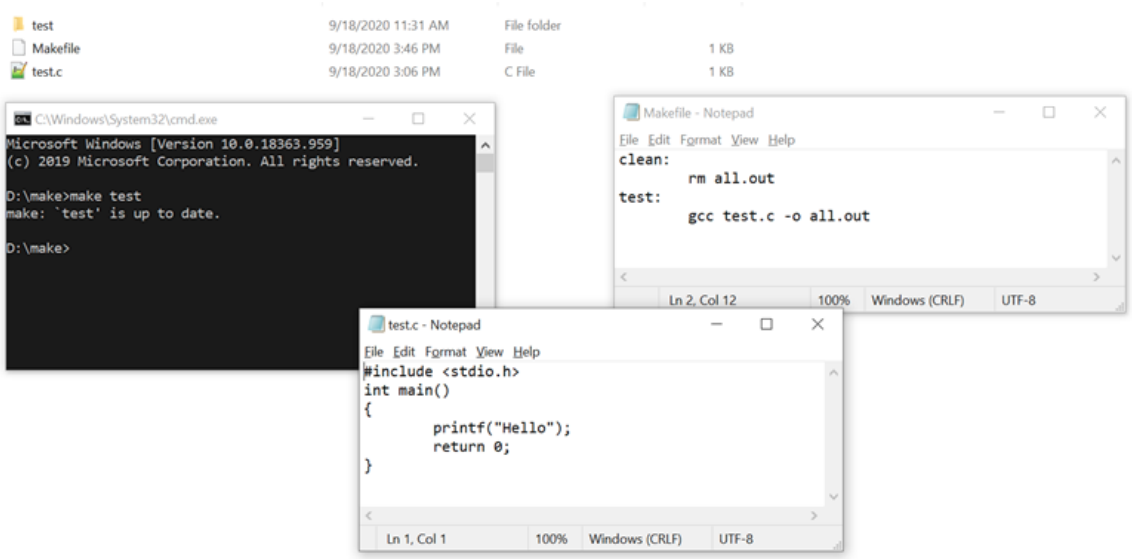
31

_____ is false about dynamic libraries?
(0/1 Points)

- Faster execution ✓
- Minimal Foot print of binary
- Sharing of code between processess
- Easy to upgrade

Make File

Observe the Image and Answer the questions



32

If user runs "make test" command after touch test.c, which of the following is true
(1/1 Points)

- "test" cannot be used as a target name
- target name "test" already exist as a file and hence target test will not run ✓
- no new changes are made to test.c file from the previous run of "make test" hence target test will not run
- none of the above

33

Which of the following will make sure target test is run even if there is a file named test in the current directory?
(1/1 Points)

- Adding ".BUILD: test" to Makefile
- Adding ".PHONY: test" to Makefile ✓
- Adding ".TEST:test" line to Makefile
- Adding ".ignore:test" line to Makefile

34

Which target will be run if we run command "make"
(0/1 Points)

- test
- clean ✓
- both test and clean
- none

35

What does the special symbol mean in Makefile?
$@, $^, $<
(2/2 Points)

- Target name, First dependency, All dependencies
- First dependency, All dependencies, Target name

- All dependencies, Target name, First dependency
- Target name, All dependencies, First dependency ✓

✗

36

Assume that you are currently under directory "D" and the makefile is in "D/my_make".
Which command would you use to build the target test?
(0/2 Points)

- make test -C my_make ✓
- make -C my_make
- ls my_make ; make -C my_make
- cd my_make; make test -C my_make

Process & Threads

37

What are the possible solutions when the program in the image is run ?

a).
Thread - A
Thread - B
main--thank you

b).
Thread - B
Thread - A
main--thank you

c).
main--thank you
Thread - A
Thread - B

d).
main--thank you
Thread - B
Thread - A

e).
Thread - A
main--thank you
Thread - B

f).
Thread - B
main--thank you
Thread - A

(0/3 Points)

```c
#include<pthread.h>
#include<stdio.h>
void* task_body1(void* pv)
{
    printf("Thread - A\n");
    pthread_exit(NULL);
}
void* task_body2(void* pv)
{
    printf("Thread - B\n");
    pthread_exit(NULL);
}
int main()
{
    pthread_t pt1,pt2;
    pthread_create(&pt1,NULL,task_body1,NULL);
    pthread_create(&pt2,NULL,task_body2,NULL);
    pthread_join(pt1,NULL);
    pthread_join(pt2,NULL);
    printf("main--thank you\n");
    return 0;
}
```

- Only a
- a & b only ✓
- c & d only
- Any of the given

38

waitpid system call causes parent process to go to _____state, if child process not yet terminated.
(1/1 Points)

- Ready
- Running
- Terminated
- Blocked ✓

39

Assuming that the fun.c file exists and it has at least 15 bytes of data, What is the output?
(3/3 Points)

```c
#include<stdio.h>
#include<pthread.h>
#include<fcntl.h>
#include<unistd.h>

int fd;
void *fun_t(void *arg);
void *fun_t(void *arg)
{
    char buff[10];
    int count;
    count = read(fd,buff,10);
    printf("%d\n",count);
    pthread_exit("Bye");
}

int main()
{
    pthread_t pt;
    void *res_t;
    fd = open("fun.c",O_RDONLY);

    if(pthread_create(&pt,NULL,fun_t,NULL) != 0)
    printf("error in pthread_create");

    if(pthread_join(pt,&res_t) != 0)
    printf("error in pthread_join");
    return 0;
}
```

- (•) 10 ✓
- ( ) 0
- ( ) -1
- ( ) segmentation fault

✗

40

What is the output of the following program on a successful system calls? (0/3 Points)

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<string.h>
int main()
{
    int fd[2];
    int ret;
    char buff[6];

    if(pipe(fd) < 0)
        perror("pipe");

    memset(buff,'\0',6);
    ret=fork();
    switch(ret){
        case -1 :
            perror("fork");
            exit(1);
        case 0 :
            if (write(fd[1],"Linux",6) != 6)
                perror("write");
            break;
        default :
            read(fd[0],buff,6);
            printf("%s\n",buff);
            break;
    }
    return 0;
}
```

- This program will print nothing
- segmentation fault
- This program will print the string “Linux” ✓
- None of the above mentioned

41

What is the output of the following?
(0/2 Points)

- This program will print nothing because the buffer is empty

This program will print the string "Linux"

```
#include<stdio.h>
#include<string.h>
#inlcude<unistd.h>

int main()
{
    int fd[2];
    int count;
    char buffer[6];

    if( pipe(fd) != 0)
        perror("pipe");

    memset(buffer,'\0',6);

    count=write(fd[1],"Linux",6);

    read(fd[0],buffer,6);

    printf("%s\n",buffer);
    return 0;

}
```

Segmentation fault

None of the above

42

```
#include<stdio.h>
#include<unistd.h>

int main()
{
    pid_t ret;
    int a, b;
    a = 10;
    b = 20;

    ret = fork();

    a = a + b;

    if(ret > 0){
        printf("%d\n",a);
    }

    return 0;
}
```

What is the output of the following?
(0/2 Points)

- Prints "30" twice
- Prints "30" once ✓
- Prints "50" once
- Prints "30" in line1 and "50" in line2

43

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include <sys/wait.h>

int main()
{
    pid_t ret;
    int status;

    ret = fork();

    switch(ret){
        case -1 :
            perror("fork");
            exit(1);
        case 0 :
            printf("%d\n",getppid());
            break;
        default :
            printf("%d\n",getpid());
            waitpid(-1, &status, 0);
            break;
     }
     return 0;
}
```

What is the output of the following?
(3/3 Points)

- (•) This program will print two same integer values ✓
- ( ) This program will print two different integer values
- ( ) Segmentation fault
- ( ) None of the mentioned

44

What is the output of the following?

a.
main
fun_t
or vice-versa depending on scheduler

b.
main
fun_t
Bye

c.
No output

d.
Error in compilation

(0/3 Points)

```
#include<stdio.h>
#include<pthread.h>
void *fun_t(void *arg);
void *fun_t(void *arg)
{
    printf("fun_t\n");
    pthread_exit("Bye");
}

int main()
{
    pthread_t pt;
    void *res_t;
    if(pthread_create(&pt,NULL,fun_t,NULL) != 0)
        perror("pthread_create");

    printf("main\n");

    if(pthread_join(pt,&res_t) != 0)
        perror("pthread_join");
    return 0;
}
```

- a ✓
- b
- c
- d

45

One process requires M resource to complete a job.
What should be the minimum number of resources available for N processes so that at least one process can continue to execute without blocking/waiting?
(0/1 Points)

- M * N
- M * N – 1
- M * N + 1
- M ✓

46

Which IPC mechanism allows data exchange without system calls and hence faster?
(0/1 Points)

- Message Queue
- Shared memory ✓
- Pipe
- All of the mentioned

47

Which is true regarding pipes?
(1/1 Points)

- Half duplex ✓

- Full duplex
- Message boundaries are preserved
- Unordered data

48

If a process is executing in its critical section, then no other processes can be executing in their critical section.
This condition is called ?
(1/1 Points)

- Mutual exclusion ✓
- Critical exclusion
- Synchronization
- Signalling

49

Several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, this is called as ?
(1/1 Points)

- Shared Memory Segments
- Critical Section
- Race condition ✓
- Process Synchronization

50

In the Zero capacity message queue mechanism:
(2/2 Points)

- The queue can store at least one message
- The sender blocks until the receiver requests for the message ✓
- The sender keeps sending and the messages don't wait in the queue
- None of the mentioned

51

CPU fetches the instruction from memory according to the value of _____
(1/1 Points)

- Program counter ✓
- Status register
- Instruction register
- Program status word

✗

52

Which of the following condition is required for a deadlock to be possible?
(0/2 Points)

- Mutual exclusion
- A process may hold allocated resources while awaiting assignment of other resources
- No resource can be forcibly removed from a process holding it