

## COMPTIA LX0-101 EXAM QUESTIONS & ANSWERS

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## COMPTIA LX0-101 EXAM QUESTIONS & ANSWERS

Exam Name: CompTIA Linux+ [Powered by LPI] Exam 1

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## **Exam A**

### **QUESTION 1**

How many SCSI ids for peripherals can SCSI-1 support?

- A. 5
- B. 6
- C. 7
- D. 8

**Correct Answer:** C

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

Up to 8 or 16 (Wide-SCSI) devices can be attached to a single bus, and the adapter itself counts as a device, which leaves 7 or 15 peripherals per bus.

For a complete list of SCSI Properties see <http://en.wikipedia.org/wiki/SCSI>

### **QUESTION 2**

You need to install a fax server. Which type of fax/modem should you install to ensure Linux compatibility?

- A. External Serial Fax/modem
- B. External USB Fax/modem
- C. Internal ISA Fax/modem
- D. Internal PCI Fax/modem

**Correct Answer:** A

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

Older kernels do not support USB, and internal modems need drivers which might not always be available. But a serial driver is active in all linux kernels, making a serial modem the most compatible.

### **QUESTION 3**

You are running Linux 2.0.36 and you need to add a USB mouse to your system. Which of the following statements is true?

- A. You need to rebuild the kernel.
- B. You need to upgrade the kernel.
- C. You need to load the USB modules for your existing modular kernel.
- D. USB support is not available in Linux.

**Correct Answer:** B

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

USB support started in Kernel 2.2 (for USB1.0; full support for USB2.0 since Kernel 2.4.; USB3.0 since 2.6.31)

### **QUESTION 4**

You have just upgraded your PC to a 60 gigabyte IDE drive. While partitioning the drive, you notice that only 32 gigabytes are available.

Which of the following will most likely allow you to use the entire drive?

- A. Create two smaller partitions of 30 gigabytes each.
- B. Set the PC BIOS to use LBA mode.
- C. Create a partition that resides entirely below the first 1024 cylinders.
- D. Use GRUB or the latest version of LILO as a bootloader.
- E. Upgrade the PC BIOS to the latest version available.

**Correct Answer:** E

**Section:** Part 1

**Explanation**

**Explanation/Reference:**

It might be possible that an older Kernel ( < 2.3.21) is the cause of this problem, but since this is not an available option the most likely problem is an old BIOS.

#### **QUESTION 5**

If Linux detects an ACPI BIOS on bootup, what does it automatically deactivate?

- A. PnP
- B. PCI
- C. ATA
- D. APM

**Correct Answer:** D

**Section:** Part 1

**Explanation**

**Explanation/Reference:**

APM is the older Version of ACPI, so it would not make sense to have both in one system.

#### **QUESTION 6**

You need to know where all the configuration files for the installed package named "postfix" are located. Assuming it was installed with rpm, which command will list this information for you?



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- A. rpm -qc postfix
- B. rpm -Vc postfix
- C. rpm --config postfix
- D. rpm -listconfig postfix
- E. rpm -qa --config postfix

**Correct Answer:** A

**Section:** Part 1

**Explanation**

**Explanation/Reference:**

-qa --config is invalid

-listconfig is invalid  
--config is invalid  
-Vc verifies the installation of <package>

#### QUESTION 7

While installing from source code you don't see the configuration script.  
What command can you run to compile the code?

- A. make configure
- B. install
- C. install makefile
- D. make

**Correct Answer:** D

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

there is typically no "make configure" command, as opposed to a ./configure.sh script which creates the makefile.

if you already have a makefile use "make" or "make install" to build the binaries.

#### QUESTION 8

How can you update a package only if an earlier version is currently installed on the system?

- A. rpm --update rpmname
- B. rpm -U rpmname
- C. rpm -F rpmname
- D. rpm --force rpmname
- E. rpm -u rpmname

**Correct Answer:** C

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

rpm -F, --freshen <package>

updates <package>, but only if the package is currently installed.

rpm -U, --upgrade <package>

updates <package> regardless if the package is installed or not.

--force only works in combination with installing or upgrading. -u is an invalid option, as is --update

#### QUESTION 9

Where can lilo place boot code?

- A. The boot ROM
- B. The boot RAM
- C. The /boot partition
- D. The MBR on a hard drive

**Correct Answer:** D

**Section:** Part 1

**Explanation**

#### **Explanation/Reference:**

LILO does not use the /boot partition, GRUB1 and GRUB2 do.

**QUESTION 10**

Where does lilo store its boot information?

- A. Boot ROM
- B. Boot RAM
- C. Master Boot Record
- D. /boot partition

**Correct Answer:** C

**Section:** Part 1

**Explanation**

**Explanation/Reference:**

lilo uses /etc/lilo.conf to store its configuration and uses the 66 bytes of free space in the MBR to install itself there (or optionally in the / folder).

GRUB uses the /boot folder to store itself and the "compiled" configuration.

**QUESTION 11**

What file is read by the program ldconfig?

- A. /lib/ld.so
- B. /etc/ld.so.conf
- C. /etc/ld.so.cache
- D. /etc/modules.conf

**Correct Answer:** B

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

/lib/ld.so is the linux loader and using information collected by ldconfig (especially /etc/ld.so.cache)

/etc/ld.so.cache is one of the outputs of ldconfig.

/etc/modules.conf is an optional configuration file used by the modprobe command.

**QUESTION 12**

After a minor security incident you are instructed by your lead sys-admin to verify the RPM's installed on a running system.

Which command will create a complete report which you can analyze for changes which may be security related?

- A. rpm -Va > report
- B. rpm -Qavy > report
- C. rpm -Vqt --nomd5 > report
- D. rpm --checkfiles > report
- E. rpm -Va --nofiles > report

**Correct Answer:** A

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

-Qavy is an invalid option, as is --checkfiles.

--nomd5 is a deprecated option

--nofiles would disable checking of any files in the packages

Example

rpm -Va ncurses

S..... /usr/bin/captoinfo

S..... /usr/bin/clear

S..... /usr/bin/infocmp

S..... /usr/bin/infotocap

[...]

would indicate that the file size has changed since installing the files.

### QUESTION 13

Which of the following would do the same as the command `cat < file1.txt > file2.txt`?

- A. `cat < file1.txt file2.txt`
- B. `cat file1.txt >file2.txt`
- C. `cat <file1.txt | file2.txt`
- D. `cat file1.txt | file2.txt`
- E. `cp file1.txt>file2.txt`

**Correct Answer:** B

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

A) would make cat use the redirected stdin and file2.txt as input

C) would pipe the output to file2.txt, which could not read it

D) see C

E) cp does not display file1.txt so it would make no sense to redirect stdout

### QUESTION 14

In the vi editor, which of the following commands will delete the current line at the cursor and the 16 lines following it (17 lines total)?

- A. `17d`
- B. `17dd`
- C. `17x`
- D. `d17d`
- E. `16d`

**Correct Answer:** B

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

Alternative: Answer B or D ist correct!

`17x` just deletes 17 characters

`17d` or `16d` is waiting for additional command input (besides `16dd` would delete only 16 lines)

### QUESTION 15

As root you have navigated to directory /B. You wish to move all of the files and directories from directory /A to directory /B.

Which of the following options would be the most appropriate command line to execute this task?

- A. `cp /a/* .`

- B. `mv -f /A/* .`
- C. `mv -Rf /a/* .`
- D. `cp -f /a/* ..`
- E. `cp -rf /A/* /b/`

**Correct Answer:** B

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

Files and folders are case-sensitive, so you can immediately dismiss all lines with "a" instead of "A", and since you need to move instead of copy, that leaves only B as the correct answer.

#### QUESTION 16

What key sequence will suspend the current process and return you to a shell prompt?

- A. Ctrl-z
- B. Ctrl-c
- C. Ctrl-x
- D. Ctrl-d

**Correct Answer:** A

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

CTRL+Z sends SIGINT to the current process, sending it to the background,

CTRL+C would send SIGTERM, ending the process

CTRL+D is used to signal an EOF

CTRL+X has no meaning in a shell

#### QUESTION 17

Which TWO commands will find the path for the binary vim?

- A. `man vim`
- B. `whereis vim`
- C. `apropos vim`
- D. `which vim`

**Correct Answer:** BD

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

`man` displays the manual pages of a command, and `apropos` shows related commands

Examples:

`$ which vim`

`/usr/bin/vim`

`$ whereis vim`

`vim: /usr/bin/vim.basic /usr/bin/vim.tiny /usr/bin/vim /usr/bin/vim.gnome /etc/vim /usr/share/vim /usr/share/man/`

`man1/vim.1.gz`

#### QUESTION 18

What command changes the priority of the process running with process id of 12345 to the highest priority?

- A. /usr/bin/renice +20 12345
- B. /usr/bin/renice -20 12345
- C. /bin/setpriority +20 12345
- D. /bin/setpriority -20 12345

**Correct Answer:** B

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

To change the priority of running process use the renice command. Default priority is 0, highest priority is -20 and lowest priority is 19. The path of renice command is /usr/bin/renice.

#### QUESTION 19

You want to save vi changes to the file myfile with :w!, but vi complains it can not write to the file. Therefore, you want to check the write permissions on the file.

To do this without leaving vi, you type:

- A. :!ls -l myfile
- B. :!ls -l myfile
- C. esc :ls -l myfile
- D. :?ls -l myfile

**Correct Answer:** A

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

Use "!command" to issue shell commands from the command prompt of vi

#### QUESTION 20

Which of the following GNU commands would be the most likely command you'd use to find the system load average?

- A. top
- B. nice
- C. loadavg
- D. cpustat
- E. ps

**Correct Answer:** A

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

The top program provides a dynamic real-time view of a running system. It can display system summary information as well as a list of tasks currently being managed by the Linux kernel. The types of system summary information shown and the types, order and size of information displayed for tasks are all user configurable and that configuration can be made persistent across restarts.

ps is used to display the running processes of the user, nice is used to set the priority of a command. cpustat and loadavg does not exist in debian or fedora.

#### QUESTION 21



Which of the following commands is equivalent to kill 1234?

- A. kill -1 1234 or kill -s SIGHUP 1234
- B. kill -2 1234 or kill -s SIGINT 1234
- C. kill -3 1234 or kill -s SIGQUIT 1234
- D. kill -9 1234 or kill -s SIGKILL 1234
- E. kill -15 1234 or kill -s SIGTERM 1234

**Correct Answer:** E

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

If no signal is specified kill uses SIGTERM (15) as its default signal to processes.

#### QUESTION 22

What command would execute cmd1 followed by cmd2, regardless of the exit status of cmd1?

- A. cmd1 cmd2
- B. cmd1 | cmd2
- C. cmd1 ; cmd2
- D. cmd1 && cmd2
- E. cmd1 || cmd2

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

You can concatenate as many commands as you want by separating them with a semi-colon.

- A) cmd1 cmd2 would tell the shell that cmd2 is a parameter of cmd1
- B) pipe the output of cmd1 to cmd2
- D) && would check the exit code of cmd1 and only start cmd2 if cmd1 was successful
- E) || would check the exit code of cmd1 and only run cmd2 if cmd1 was not successful

#### QUESTION 23

Which command will print to standard out only the lines that do not begin with # (pound symbol) in the file foobar?

- A. /bin/grep ^# foobar
- B. /bin/grep -v ^# foobar
- C. /bin/grep # \$ foobar
- D. /bin/grep -v # \$ foobar

**Correct Answer:** B

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

- A) would grep for all lines starting with #
- C) would grep for all lines ending with #
- D) would grep for all lines not ending with #

#### QUESTION 24

What command will remove duplicate lines from a sorted file?

- A. filter
- B. trim
- C. uniq
- D. wc

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

uniq - remove duplicate lines from a sorted file

wc - wordcount

trim - remove whitespaces

filter is not standard unix filter command

#### **QUESTION 25**

Which command line option would you use to restrict the GNU find command to searching a particular number of subdirectories?

- A. --max-dirs
- B. -dirmax
- C. -maxdepth
- D. -s
- E. -n

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

from the man pages:

-maxdepth levels

Descend at most <levels> (a non-negative integer) levels of directories below the command line arguments.

#### **QUESTION 26**

What is the disadvantage of using the command kill -9 ?

- A. A core dump file will be created.
- B. It affects the entire process group.
- C. It makes excessive use of system resources.
- D. The action can be blocked by buggy or malicious processes.
- E. The affected process is unable to clean up before exiting.

**Correct Answer:** E

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

From wikipedia: When sent to a program, SIGKILL (9) causes it to terminate immediately. In contrast to SIGTERM and SIGINT, this signal cannot be caught or ignored, and the receiving process cannot perform any clean-up upon receiving this signal.

#### **QUESTION 27**

To prevent a command run as root from sending both standard out (stdout) and standard error (stderr) to any terminal or other file or device.

Which of the following strings should be appended to the command?

- A. >/dev/null
- B. >/dev/null 1>&2
- C. >/dev/null 2>&1
- D. 1>&2 >/dev/null
- E. 2>&1 >/dev/null

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

- A) redirects only stdout
- B) would send stdout to /dev/null, then redirect is to stderr, putting all output to stderr
- D) would first redirect stdout to stderr, then redirect stdout to /dev/null, leaving stderr as it is
- E) would first redirect stderr to stdout, then only stdout to /dev/null, leaving stderr on stdout

cmd &> /dev/null would have the same result as C

#### QUESTION 28

You want to search the file myfile for all occurrences of string containing at least five characters, where character number 2 and 5 are 'a' and character number 3 is NOT 'b'.

Which command would you use?

- A. grep a^b\*a myfile
- B. grep .a[^b].a myfile
- C. grep .[a].\*[a] myfile
- D. grep .a^b..a myfile

**Correct Answer:** B

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

- A) since ^ without brackets indicates beginning of line, this regex would search for lines where any count of 'a' come before the start of the line
- C) would find every combination like xabax
- D) has the same problem as A

#### QUESTION 29

What does the following command do?

cat '\$TEST'

- A. Displays a bash syntax error message.
- B. Displays the contents of the file named \$TEST if it exists.
- C. Waits for the user to enter text and then echos the text back.
- D. Displays the contents of the file named inside the back quotes.
- E. Displays the contents of the named by the environment variable TEST.

**Correct Answer:** B

**Section:** Part 3

## Explanation

### Explanation/Reference:

single quotation marks instruct the bash not to do wildcard expansion or variable replacement, so cat will display the file called exactly \$TEST

use double quotation marks to get variable replacement, but not wildcard replacement, and no quotations to get both.

Do not confuse with `cmd` which evaluates the command and replaces its output on the shell.

### QUESTION 30

You want the command foo to take its input from the file foobar and send its output to the program bar.

Which of the following command lines will do this?

- A. `foo < foobar | bar`
- B. `foo < foobar > bar`
- C. `foo | foobar > bar`
- D. `foo | bar < foobar`
- E. `foo > bar < foobar`

**Correct Answer:** A

**Section:** Part 3

## Explanation

### Explanation/Reference:

B) would redirect output into a file called bar (overwriting an existing bar)

C) would pipe output of foo to foobar

D) would call foo then bar with the input of foobar

E) would redirect stdin to file foobar and stdout into file bar (overwriting an existing bar)

### QUESTION 31

Which of the following commands would display the lines containing capital letters from the file "turkey.txt"?

- A. `cat turkey.txt|wc -l`
- B. `grep -n [A-Z] turkey.txt`
- C. `cat turkey.txt|wc -w [A-Z]`
- D. `grep -v [A-Z] < turkey.txt`
- E. `for [A-Z] in turkey.txt | count`

**Correct Answer:** B

**Section:** Part 3

## Explanation

### Explanation/Reference:

A) would display the linecount of all lines in turkey.txt

C) would display an error

D) would display all lines not containing capital letters

E) would display an error

### QUESTION 32

Which of these commands allows you to use shared libraries that are in /usr/local/lib?

- A. `export LD_PRELOAD=/usr/local/lib`
- B. `export LD_LIBRARY_PATH=/usr/local/lib`
- C. `ldconfig /usr/local/lib`
- D. `ldd /usr/local/lib`

**Correct Answer:** B

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

ld.so searches for shared libraries in LD\_LIBRARY\_PATH before looking in the standard directories. alternatively you can specify the directory in the /etc/ld.so.conf and running ldconfig.

**QUESTION 33**

Which file is used by ld.so to find libraries quickly without actually having to search the directories in its library path?

- A. /etc/ld.so.cache
- B. /etc/ld.so.conf
- C. /etc/ld.so
- D. /var/ld/cache
- E. /var/.cache

**Correct Answer:** A

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

- B) is used by ldconfig to create /etc/ld.so.cache
- C) is the program itself
- D) does not exist (on fedora or ubuntu)
- E) does not exist

**QUESTION 34**

Which system administration command you can use to update ld.so.cache after the installation of new shared libraries?

- A. ldconfig
- B. ldd
- C. libpath
- D. newlibs

**Correct Answer:** A

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

ldconfig builds the library cache from the standard library directories and the ld.so.conf file

**QUESTION 35**

How do you get a list of files that have been installed from a dpkg package?

- A. dpkg -l pkgname
- B. dpkg -C pkgname
- C. dpkg -s pkgname
- D. dpkg -S pkgname
- E. dpkg -L pkgname

**Correct Answer:** E

## Section: Part 9

### Explanation

#### Explanation/Reference:

- l prints the list of all packages matching pkgname
- C checks for broken packages
- s displays status information for a package
- S searches for a package matching pkgname

#### QUESTION 36

What RPM command would show you detailed information for a package called openssh-3.6.i386.rpm?

- A. rpm --showinformation openssh-3.6.i386.rpm
- B. rpm --showdetails --package openssh-3.6.i386.rpm
- C. rpm --query --info --package openssh-3.6.i386.rpm
- D. rpm --verify openssh-3.6.i386.rpm

**Correct Answer: C**

## Section: Part 9

### Explanation

#### Explanation/Reference:

- verify only checks changes on the installed files
- showinformation is not a rpm option, as is --showdetails.

rpm -qpi <rpmfile> would display the same results.

#### QUESTION 37

In GRUB's configuration file you find the line

root (hd1,4)

What is corresponding device name on a Linux system?

- A. /dev/hda4
- B. /dev/hda5
- C. /dev/hdb4
- D. /dev/hdb5

**Correct Answer: D**

## Section: Part 9

### Explanation

#### Explanation/Reference:

Grub starts counting harddrives and partitions at zero, thus (hd1,4) is the 5th partition on the second harddrive / dev/sdb5 or /dev/hdb5

#### QUESTION 38

You are having some trouble with a disk partition and you need to do maintenance on this partition but your users home directories are on it and several are logged in.

Which command would disconnect the users and allow you to safely execute maintenance tasks?

- A. telinit 1
- B. shutdown -r now
- C. killall -9 inetd

- D. /bin/netstop --maint
- E. /etc/rc.d/init.d/network stop

**Correct Answer:** A

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

telinit 1 orders the init process to switch to runlevel 1, stopping all services not configured for runlevel 1, including network and multiuser support.

#### **QUESTION 39**

What is the PID for the Init that is the parent of all the process?

- A. 0
- B. 1
- C. changes on reboot
- D. same as current runlevel
- E. -1

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

init is the first process the kernel starts, so init always has root privileges and PID 1

#### **QUESTION 40**

Which command would run "make" in the background?

- A. make && bg
- B. make ; bg
- C. make &
- D. nohup make

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

append & to any command to run it in the background (alternatively use CTRL+Z and bg)

#### **QUESTION 41**

Consider the following commands

- A) \$ nice -n 1 /usr/bin/somecommand
- B) \$ nice -n 5 /usr/bin/somecommand
- C) \$ nice -n 10 /usr/bin/somecommand

Which instance of somecommand is run with the highest priority?

- A. A
- B. B
- C. C
- D. none, only superuser can change the priority

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

The lower the nice-value the higher the priority, so A is the correct value.

Only the superuser may set negative values, but since A, B and C are using positive values this is irrelevant for this Question.



## Exam B

### QUESTION 1

In Bash, inserting "1>&2" after a command redirects

- A. standard error to standard input
- B. standard input to standard error
- C. standard output to standard error
- D. standard error to standard output
- E. standard output to standard input

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

- A) 2>&1
- B) does not make sense
- D) 2>&1
- E) use | (pipe) to redirect stdout to stdin

### QUESTION 2

Identify the proper device for the third partition, on the second hard disk, on the first IDE controller on a PC system.

- A. /dev/hdb3
- B. /dev/hd1b3
- C. /dev/hdc1b3
- D. /dev/hdc1d2p3

**Correct Answer:** A

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

For IDE drives:

primary master /dev/hda

primary slave /dev/hdb

secondary master /dev/hdc

secondary slave /dev/hdd

So the 3rd partition on the second harddrive is /dev/hdb3 (or /dev/sdb3 for SCSI drives)

### QUESTION 3

What umask will set the file permissions on a newly created file to -rw-r--r-- (644)?

- A. 0002
- B. 0022
- C. 0224
- D. 0246

**Correct Answer:** B

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

The trick is to know that umask on a file excludes execute-privileges per default, so to remove the write-privilege

on a file use 022.

#### QUESTION 4

What is the proper option to put in /etc/fstab to enable group quotas for a particular partition?

- A. groupquota
- B. grpquota
- C. groupquotas
- D. grpquotas

**Correct Answer:** B

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

Use grpquota for groups or usrquota for users in /etc/fstab

#### QUESTION 5

Which utility would you use to change how often a filesystem check was performed over an EXT2 filesystem (without losing any data stored on that filesystem)?

- A. mod2fs
- B. fsck
- C. tune2fs
- D. mke2fs
- E. fixe2fs

**Correct Answer:** C

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

tune2fs is used to change parameters in the superblock

fsck is used to check the (unmounted) filesystem

mke2fs is used to format the partition

#### QUESTION 6

You have run out of disk space on a partition.

Which of the following would be an easy way to move data to a new partition without reconfiguring the path to the data in existing applications?

- A. Run ext2fs ACL.
- B. Use a hard link.
- C. Use a symbolic link.
- D. Use the loopback device.
- E. Create a block device offset.

**Correct Answer:** C

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

A) ACL specifies extended user and group rights on files and directories

B) Hardlink does not work over partitions

D) mounting something as loopback (mount -o loop) would require an image of the existing data

E) ?

If you use a symbolic link pointing from the new partition to the old data you do not need to move the data, since for users it would look like the data is already there. On the other hand, there would still be little disk space left on the old partition / directory.

#### **QUESTION 7**

What TWO permissions must a user have in order to run a shell script?

- A. read
- B. write
- C. execute
- D. browse on the directory
- E. users cannot run shell scripts

**Correct Answer:** AC

**Section:** Part 4

**Explanation**

#### **Explanation/Reference:**

You do not need write privileges on shell scripts.

Directory browsing privileges are not needed if you know exactly how to start the script, even without this permission you may change into the directory and start the shell script

Users can run any application as long as the specific permission is set (read and execute right for owner, group or others)

#### **QUESTION 8**

You are using quota on your system. How can you see disk quota details?

- A. repquota
- B. quota -l
- C. quota
- D. quotacheck
- E. quota --list

**Correct Answer:** A

**Section:** Part 4

**Explanation**

#### **Explanation/Reference:**

quota lists the quotas for a user or group, use repquota for a drive or partition

#### **QUESTION 9**

Which of the following Linux filesystems pre-allocates a fixed number of inodes at filesystems make/creation time, and does NOT generate them as needed?

- A. ext3
- B. jfs
- C. reiserfs
- D. xfs

**Correct Answer:** A

**Section:** Part 4

**Explanation**

#### **Explanation/Reference:**

reiserfs does not even use inodes  
jfs and xfs use dynamic inode allocation

#### QUESTION 10

You have just added a CD-ROM drive (/dev/hdd) to your system and have added it to your fstab.

Typically you can use which of the following commands to mount media in that drive to /mnt/cdrom?

- A. mount /dev/cdrom /mnt/cdrom
- B. mount /dev/cdrom
- C. mount -t cdrom/dev/cdrom/mnt/cdrom
- D. mount /mnt/cdrom
- E. automount/mnt/hdd/mnt/cdrom

**Correct Answer:** D

**Section:** Part 4

**Explanation**

#### **Explanation/Reference:**

mount can work with either devicename or mountpoint if the device was added in /etc/fstab (and the mountpoint exists)  
(and /dev/cdrom is not the correct devicename)

#### QUESTION 11

What would the following line accomplish if run as root?

```
chown -R bert /home/bert/*
```

- A. Nothing, this command is invalid.
- B. It would revoke bert's ownership of all files in /home/bert to bert.
- C. It would change user ownership of all files in /home/bert to bert.
- D. It would set the group ownership of the directory /home/bert to bert
- E. It would set ownership of all files and subdirectories in /home/bert to bert

**Correct Answer:** E

**Section:** Part 4

**Explanation**

#### **Explanation/Reference:**

From the man pages:  
chown changes the user and/or group ownership of each given file. -R operate on files and directories recursively

#### QUESTION 12

Which one of the following programs will only find files that are in your PATH?

- A. locate
- B. slocate
- C. which
- D. find

**Correct Answer:** C

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

From the man pages:

which returns the pathnames of the files (or links) which would be executed in the current environment, had its arguments been given as commands in a strictly POSIX-conformant shell. It does this by searching the PATH for executable files matching the names of the arguments. It does not follow symbolic links.

### QUESTION 13

You want the default permissions for your files to be -rw-r----- .

HOW must you set umask?

- A. 037
- B. 640
- C. 038
- D. 027

**Correct Answer:** D

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

- A) removes the directory permission g-x making the g+r permission pointless
- B) would result in --x-wxrw, which is not what we want
- C) is not a octal number used for umask

### QUESTION 14

Which chown command will change the ownership to foo and the group to bar on a file named biglist?

- A. chown foo/bar biglist
- B. chown -u foo -g bar biglist
- C. chown foo:bar biglist
- D. chown --user foo --group bar biglist

**Correct Answer:** C

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

From the manual pages:

SYNOPSIS

chown [OPTION]... [OWNER][:[GROUP]] FILE...

There is no parameter for user and/or group, and the correct separation character is the ":"

### QUESTION 15

Which option must be listed in /etc/fstab to activate user quotas automatically?

- A. quota
- B. user
- C. quotaon
- D. usrquota

**Correct Answer:** D

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

To activate user quotas in partitions, you have to mount a partition with the option `usrquota`.

Additionally "`quotaon -auvg`" must be run in the init script to turn on quotas.

#### QUESTION 16

Which of the following commands makes `/bin/foo` executable by everyone but only writable by its owner?

- A. `chmod 557 /bin/foo`
- B. `chmod o +rwx,a+rx /bin/foo`
- C. `chown 557 /bin/foo`
- D. `chmod 755 /bin/foo`

**Correct Answer:** D

**Section:** Part 4

**Explanation**

#### Explanation/Reference:

- A) would set `-wx-wxrw` permissions on `/bin/foo`
- B) would set at least `r-xr-xrw` on `/bin/foo` (depending on former permissions)
- C) would set the UID of `/bin/foo` to 557 (even if no user exists with that id)

#### QUESTION 17

The command `cat /proc/dma` will show you what?

- A. Whether DMA is enabled
- B. Which DMA channels are in use
- C. Which DMA mode is in use
- D. General information about DMA on the machine

**Correct Answer:** B

**Section:** Part 4

**Explanation**

#### Explanation/Reference:

`/proc/dma` contains a list of the registered ISA direct memory access (DMA) channels in use. It shows whether DMA is enabled or not.

Example

```
# cat /proc/dma
4: cascade
```

#### QUESTION 18

You are formatting a single hard disk for a Linux install. What is the maximum number of primary partitions you can create?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4
- F. 5

**Correct Answer:** E

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

On MBR partitioned harddrives only 4 primary partition can be created. (Use extended and logical partitions to create more partitions).

**QUESTION 19**

In order to append the output of ls to a file called bazz, which of the following command lines would you use?

- A. ls > bazz
- B. ls >& bazz
- C. ls &> bazz
- D. ls >> bazz

**Correct Answer:** D

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

- A) cmd > file - redirect the standard output of cmd into file.
- B) cmd >& file - redirect stdout to file
- C) cmd &> file - redirect stdout and stderr to file

**QUESTION 20**

Which command is used to dump files in octal format?

- A. od
- B. octdump
- C. dumpoct
- D. cat -o

**Correct Answer:** A

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

From the man pages:

Write an unambiguous representation, octal bytes by default, of FILE [or stdin, if no file is specified] to standard output.

**QUESTION 21**

You are logged in as user tux1, but now you want to switch to user tux2 using tux2's environment.

How would you do this?

- A. su tux2
- B. su -e tux2
- C. su - tux2
- D. su -m tux2
- E. su -f tux2

**Correct Answer:** C

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

from the man pages:

-, -l, --login Provide an environment similar to what the user would expect had the user logged in directly.

There are no -e or -f options and -m would not switch the environment (except PATH)

#### QUESTION 22

You have read/write permission on an ordinary file foo. You have just run *In foo bar*.

What would happen if you ran `rm foo`?

- A. foo and bar would both be removed.
- B. foo would be removed while bar would remain accessible.
- C. foo would be removed. bar would still exist but would be unusable.
- D. Both foo and bar would remain accessible.
- E. You would be asked whether bar should be removed.

**Correct Answer:** B

**Section:** Part 5

**Explanation**

#### Explanation/Reference:

`ln` (without option -s) creates a hardlink of a file; creating a hardlink creates a new directory entry, but no new inode is created. Instead the new file gets the same inode as the old file, and the linkcounter is incremented. Deleting any File with a linkcount greater than 1 just removes the directory entry, the datablocks and the inode are freed only when the last link (linkcount equals 1) is deleted.

#### QUESTION 23

You need to create a simple hierarchy of directories: `images/photos/summer/ottawa/`

None of the directories on that path exists. What command will create all of the needed directories in one step?

- A. `mkdir -r images/photos/summer/ottawa/`
- B. `mkdir -R images/photos/summer/ottawa/`
- C. `mkdir -p images/photos/summer/ottawa/`
- D. `mkdir -P images/photos/summer/ottawa/`
- E. `mkdir -m images/photos/summer/ottawa/`

**Correct Answer:** C

**Section:** Part 5

**Explanation**

#### Explanation/Reference:

From the man pages:

`mkdir` - make directories

`-p, --parents` make parent directories as needed

#### QUESTION 24

While using the vi editor, you wish to move ahead one page. You should press the control key and:

- A. A
- B. D
- C. F
- D. U

**Correct Answer:** C

**Section:** Part 5

**Explanation**



**Explanation/Reference:**

To move screen in vi Editor,

- F - go forward one full screen
- B - go back one full screen
- D - go down half screen
- U - go up half screen

**QUESTION 25**

You enter the command `date +%M`. What does the output show you?

- A. the current year
- B. the current month
- C. the current hour
- D. the current minute
- E. the current second

**Correct Answer:** D

**Section:** Part 5

**Explanation****Explanation/Reference:**

From the man pages:

`date` - print or set the system date and time

`date [OPTION]... [+FORMAT]`

`date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]`

[...]

%A locale's full weekday name, variable length (Sunday..Saturday)

%b locale's abbreviated month name (Jan..Dec)

%B locale's full month name, variable length (January..December)

%c locale's date and time (Sat Nov 04 12:02:33 EST 1989)

%C century (year divided by 100 and truncated to an integer) [00-99]

%d day of month (01..31)

%H hour (00..23)

%m month (01..12)

%M minute (00..59)

%Y year (1970...)

**QUESTION 26**

Which command will print out the attributes of the file `foobar`?

- A. `ls --attr foobar`
- B. `lsattr foobar`
- C. `printattr foobar`
- D. `fileattr foobar`

**Correct Answer:** B

**Section:** Part 5

**Explanation****Explanation/Reference:**

From the man pages:

`lsattr` - list file attributes on a Linux extfs

For a list of possible attributes see man page for **chattr(1)**.

**QUESTION 27**

Which of the following commands will list the quota for the user foobar?

- A. repquota foobar
- B. quota foobar
- C. lsquota foobar
- D. printquota foobar

**Correct Answer:** B

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

From the man pages:

**quota** displays users' disk usage and limits. By default only the user quotas are printed.

**repquota** prints a summary of the disk usage and quotas for the specified file systems.

lsquota and printquota commands do not exist.

#### **QUESTION 28**

You have an USB storage device that you cannot get working. You have enabled all appropriate USB options in the latest 2.2 kernel but still cannot get your device working.

What is most likely the source of the problem?

- A. You have not configured your usb.usermap properly
- B. You are using the wrong kernel for this type of device
- C. The USB device is not USB 2.0 compliant
- D. There is a USB resource conflict

**Correct Answer:** B

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

Only USB1.0 is supported for Kernel 2.2, upgrade to at least 2.4 to use USB2.0

#### **QUESTION 29**

You want to install a new software package, but it is only available in RPM format and you are running Debian Linux.

Which of the following would help you to install it on your system?

- A. alien
- B. apt-conf
- C. dselect
- D. cpio

**Correct Answer:** A

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

From the man pages:

alien is a program that converts between Red Hat rpm, Debian deb, Stampede slp, Slackware tgz, and Solaris pkg file formats. If you want to use a package from another linux distribution than the one you have installed on your system, you can use alien to convert it to your preferred package format and install it.

dselect is the debian commandline administration frontend for packaging.  
/etc/apt/apt.conf is the central configuration-file for aptitude.  
cpio is an archiver, similar to tar.

#### QUESTION 30

What command will uninstall a package but leave its configuration files in case a package is re-installed?

- A. none, no command will do this
- B. dpkg -s pkgname
- C. dpkg -L pkgname
- D. dpkg -P pkgname
- E. dpkg -r pkgname

**Correct Answer:** E

**Section:** Part 6

**Explanation**

#### **Explanation/Reference:**

Option -r, --remove removes everything except configuration files.  
Use option -R, --purge to remove packages completely.

-L lists all files for an installed package  
-s displays the status of a package

#### QUESTION 31

What is the purpose of the bash built-in export command?

- A. To allow disks to be mounted remotely.
- B. To run a command as a process in a sub-shell.
- C. To make the command history available to sub-shells.
- D. To setup environment variables for applications.
- E. To share NFS partitions for use by other systems on the network.

**Correct Answer:** D

**Section:** Part 9

**Explanation**

#### **Explanation/Reference:**

Without **export**, a variable will only be visible in the process that defined it. Exported variables are also visible in all child processes that are created after the export.

#### QUESTION 32

The message "Hard Disk Error" is displayed on the screen during Stage 1 of the GRUB boot process. What does this indicate?

- A. The kernel was unable to execute /bin/init
- B. The next Stage cannot be read from the hard disk because GRUB was unable to determine the size and geometry of the disk
- C. One or more of the filesystems on the hard disk has errors and a filesystem check should be run
- D. The BIOS was unable to read the necessary data from the Master Boot Record to begin the boot process

**Correct Answer:** B

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

GRUB Stage 1 is before the Kernel is loaded, but after the BIOS started the bootloader.

**QUESTION 33**

Which of the following commands can be used to instruct the init process to switch runlevels?

(Choose TWO correct answers)

- A. telinit
- B. initctl
- C. init
- D. reinit
- E. runlevel

**Correct Answer:** AC

**Section:** Part 10

**Explanation****Explanation/Reference:**

From the man pages:

telinit - change system runlevel

init is not normally executed by a user process, and expects to have a process id of 1. If this is not the case, it will actually execute telinit(8) and pass all arguments to that.

runlevel - output previous and current runlevel

initctl - init daemon control tool

reinit command does not exist (on ubuntu or fedora)

**QUESTION 34**

The system is having trouble and the engineer wants to bypass the usual /sbin/init startup and run /bin/sh.

What is the usual way to pass this change to the kernel from your boot loader?

- A. Start in runlevel 1
- B. Pass init=/bin/sh on the kernel parameter line
- C. Pass /bin/sh on the kernel parameter line
- D. Pass start=/bin/sh on the kernel parameter line

**Correct Answer:** B

**Section:** Part 10

**Explanation****Explanation/Reference:**

If you use lilo or GRUB you can easily edit the kernel parameter line; any process specified by init=<command> will be executed with root privileges.

**QUESTION 35**

Which command will show you the contents of a gzip compressed tar archive?

- A. gzip archive.tgz | tar xvf -
- B. tar ztf archive.tgz
- C. gzip -d archive.tgz | tar tvf -
- D. tar cf archive.tgz

**Correct Answer:** B

**Section: Part 10****Explanation****Explanation/Reference:**

- A) gzip <filename> would inplace compress <filename>; using pipe would not make sense
- C) gzip -d <filename> would inplace uncompress <filename>.gz; pipe also would not make sense here
- D) tar cf <filename> would create an archive, not list the contents.

**QUESTION 36**

What can the tee command be used for?

- A. Print the contents of a file in reverse order
- B. Use the output of one command as arguments to another
- C. Add line numbers to the output of a command
- D. Pipe the output of one command into the input of another
- E. Send a command's output to stdout and to a file at the same time

**Correct Answer: E**

**Section: Part 10****Explanation****Explanation/Reference:**

From the man pages:

tee - read from standard input and write to standard output and files

**QUESTION 37**

Which key do you press to switch to normal mode in vi?

- A. Alt
- B. Esc
- C. Ctrl
- D. Shift

**Correct Answer: B**

**Section: Part 10****Explanation****Explanation/Reference:****QUESTION 38**

Which directory contains additional information about installed packages?

- A. /usr/share/documentation
- B. /usr/local/share/documentation
- C. /usr/local/doc
- D. /usr/share/doc
- E. /usr/packages/doc

**Correct Answer: D**

**Section: Part 10****Explanation****Explanation/Reference:**

**QUESTION 39**

Which of the following commands will replace every instance of the word list with LIST from the file myfile.txt and print the results on the screen?

- A. sed --in-place -e "s/list/LIST/" myfile.txt
- B. sed -e "s/list/LIST/" myfile.txt
- C. sed --in-place -e "/list/LIST/" myfile.txt
- D. sed -e "/list/LIST/" myfile.txt

**Correct Answer:** B

**Section:** Part 10

**Explanation**

**Explanation/Reference:**

Technically even B) is not the correct answer, but it is the least wrong answer.

sed -e "s/list/LIST/g" myfile.txt would replace EVERY occurrence of list in myfile.txt

The other 3 answers either modify the source file, or are just plain wrong.

**QUESTION 40**

Which TWO runlevels should never be declared as the default runlevel?

- A. 0
- B. 3
- C. 5
- D. 6

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

From the man pages:

Runlevels 0, 1 and 6 are reserved. Runlevel 0 is used to halt the system and 6 to reboot the system. Runlevel 1 is used to bring the system back down into single-user mode.

**QUESTION 41**

When you format the filesystem with the command mkfs -t ext3 -T largefile /dev/hdb1 how much data is represented by a single inode?

- A. 4 KB
- B. 1 MB
- C. 2 MB
- D. 4 MB

**Correct Answer:** B

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

From the man pages:

-T usage-type[,...] Specify how the filesystem is going to be used, so that mke2fs can choose optimal filesystem parameters for that use. The usage types that are supported are defined in the configuration file /etc/mke2fs.conf(5)

Some usage types are:

news: one inode per 4kb block

largefile: one inode per megabyte

largefile4: one inode per 4 megabytes

## Exam C

### QUESTION 1

Which Debian package system command will list all partially installed packages and suggest how to get them correctly installed?

- A. dpkg -C
- B. apt-get -u
- C. dpkg -Dh
- D. dpkg -l
- E. apt-get -y

**Correct Answer:** A

**Section:** Part 6

**Explanation**

#### Explanation/Reference:

From the man pages:

dpkg -C, --audit list all partially installed packages and will make suggestions how to install them correctly.

-Dh is the option for displaying help for the debugging options

-l, --info shows status information about a specific package

apt-get -y, --yes, --assume-yes will answer every interactive question with Yes, allowing unattended installation and upgrades.

apt-get -u, --show-upgraded shows all packages that were or will be upgraded.

### QUESTION 2

What single command (no options or arguments) can be used to fully extract a file called abc.tar.bz2?

- A. gzip
- B. gunzip
- C. tar
- D. bz2unzip

**Correct Answer:** C

**Section:** Part 6

**Explanation**

#### Explanation/Reference:

gzip and gunzip work with \*.gz files, and there is no bz2unzip command, leaving only tar as the right answer.

### QUESTION 3

A Makefile typically contains which targets?

- A. CFLAGS, CPPFLAGS, LIBS, LDFLAGS
- B. clean, install, uninstall
- C. PATHS, DESTDIR, LIBS, LDFLAGS
- D. prefix, exec\_prefix, bindir, mandir

**Correct Answer:** B

**Section:** Part 6

**Explanation**

#### Explanation/Reference:

While makefiles can contain every one of the above targets, commonly clean, install, and uninstall are used in makefiles.



**QUESTION 4**

Which RPM command will output the name of the package which installed the file /etc/exports?

- A. rpm -F /etc/exports
- B. rpm -qf /etc/exports
- C. rpm -KI /etc/exports
- D. rpm -qp /etc/exports
- E. rpm -ql /etc/exports

**Correct Answer:** B

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

Use the -q, --query option in combination with -f to get the package that contains a specified file. dpkg -S /etc/exports would do the same on debian systems.

**QUESTION 5**

Which command will list all the files installed from the RPM package file named vorbis-tools-1.1.i386.rpm?

- A. rpm -qf vorbis-tools-1.1.i386.rpm
- B. rpm -F vorbis-tools-1.1.i386.rpm
- C. rpm -pf vorbis-tools-1.1.i386.rpm
- D. rpm -ql vorbis-tools-1.1.i386.rpm
- E. rpm -qlp vorbis-tools-1.1.i386.rpm

**Correct Answer:** E

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

You have to use the -p option if you want information about a rpm-file.

**QUESTION 6**

Which of the following programs is typically used to query installed debian packages?

(Please select TWO that apply)

- A. dpkg
- B. apt-cache
- C. apt-conf
- D. dselect

**Correct Answer:** AD

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

dselect is the console frontend for the apt family, and dpkg the commandline tool for package administration. apt-cache is used to manipulate the apt cache, and apt-conf is not a command.

**QUESTION 7**

George is planning a partition scheme for a new Linux installation. Which THREE directories should he consider for separate partitions?

(Select THREE answers)

- A. /etc
- B. /home
- C. /var
- D. /lib
- E. /tmp

**Correct Answer:** BCE

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

B) and C) to allow for easy upgrade to larger harddrives

E) because everyone can write to /tmp and it is possible to use up (almost) all the free disk space. Putting /tmp on a seperate, smaller partition prevents that.

A) and D) should not be seperated from / according to FHS.

#### QUESTION 8

All items are required to enable USB support on a Linux system EXCEPT...

- A. A kernel that has USB driver support
- B. A USB 2.0 compatible device



<http://www.gratisexam.com/>

- C. A supported controller chip such as OHCI, UHCI, or EHCI
- D. A kernel that supports hot-pluggable devices

**Correct Answer:** B

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

You need a Kernel with USB and hot-pluggable device support (2.2 or later), you need a supported USB controller. A USB2.0 device is not a requirement (since USB1.0 is also supported)

#### QUESTION 9

The sticky bit is usually set on

- A. /var/log
- B. /tmp
- C. /home
- D. log files

**Correct Answer:** B

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

When the sticky bit is set, only the item's owner, the directory's owner, or the superuser can rename or delete files. This prevents users from deleting other users files. That is especially important in /tmp because everyone may write in /tmp.

#### QUESTION 10

How can you turn off the group quota in /pub?

- A. quotaoff /pub
- B. quotaoff -gv /pub
- C. quotadown /pub
- D. rm /pub/quota.group

**Correct Answer:** B

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

quotaoff without -g would turn off the quota completely (users and groups)

#### QUESTION 11

What command line redirection characters instruct the shell to read from the current input source until a specific word, on a separate line and without leading and trailing characters, is reached?

- A. <<
- B. <|
- C. !<
- D. \$<

**Correct Answer:** A

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

Example:

```
$ echo <<foobar
```

```
Hello
```

```
foobar
```

```
Hello
```

#### QUESTION 12

What is the output when the following shell command executes?

```
$ cat << foobar
```

```
Hello foobar
```

```
foobar
```

- A. The contents of the file foobar
- B. Hello
- C. No output but a file named foobar is created
- D. Hello foobar
- E. Hello foobar  
foobar

**Correct Answer:** D

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

see Exam C / Question 14

**QUESTION 13**

Which of the following commands will display the last 30 lines of /var/log/bigd.log as well as new content as it is appended to the file by another process?

- A. `cut -30 -v /var/log/bigd.log`
- B. `head -30 -e /var/log/bigd.log`
- C. `tail -f -n 30 /var/log/bigd.log`
- D. `tac -30 /var/log/bigd.log`
- E. `cat -r -n 30 /var/log/bigd.log`

**Correct Answer: C**

**Section: Part 7**

**Explanation****Explanation/Reference:**

From the man pages:

`tail` - output the last part of files

**QUESTION 14**

Which of the following commands will change all CR-LF pairs in an imported text file, `userlist.txt`, to Linux standard LF characters and store it as `newlist.txt`?

- A. `tr '\r\n' ' ' < userlist.txt > newlist.txt`
- B. `tr -c '\n\r' ' ' < newlist.txt > userlist.txt`
- C. `tr -d '\r' < userlist.txt > newlist.txt`
- D. `tr '\r' '\n' userlist.txt newlist.txt`
- E. `tr -s '^M' '^J' userlist.txt newlist.txt`

**Correct Answer: C**

**Section: Part 7**

**Explanation****Explanation/Reference:**

To change CR-LF ("`\r\n`", DOS newline) to LF ("`\n`", Linux newline) just delete the CR "`\r`" part from the file. This is done by using `tr` with the `-d` (delete) option.

**QUESTION 15**

Which of the following commands will find the string `foo` in `file1.txt`, regardless of `foo` being in upper or lowercase letters?

- A. `cat file1.txt | grep -i foo`
- B. `cat file1.txt > grep -n foo`
- C. `grep -i foo | file1.txt`
- D. `grep -n file1.txt < foo`
- E. `grep -n foo file1.txt`

**Correct Answer: A**

**Section: Part 7**

**Explanation****Explanation/Reference:**

grep option -i tells grep to work case insensitive.

#### **QUESTION 16**

The command used to determine a file's type is ...

- A. type
- B. find
- C. file
- D. ls

**Correct Answer:** C

**Section:** Part 8

**Explanation**

#### **Explanation/Reference:**

From the man pages:

file — determine file type

#### **QUESTION 17**

Many people like the vi text editor but the default bash command line editor recognizes emacs keystrokes.

What command entered into a bash initialization file will have bash recognize vi keystrokes after login?

- A. history -p vi
- B. alias emacs=vi
- C. HISTCMD=vi
- D. set -o vi
- E. unset emacs

**Correct Answer:** D

**Section:** Part 8

**Explanation**

#### **Explanation/Reference:**

You can switch the internal bash commandline editor by using the set -o command either directly in the command line or in the .bashrc file (or any other start script).

#### **QUESTION 18**

You ran out of space and added a eighth disk to your SCSI-I system. When you try to start, the system no longer boots.

What is most likely the cause of this problem?

- A. SCSI-I supports only 8 devices including the adaptor
- B. SCSI-I supports only 6 disks per adaptor
- C. There is a SCSI-ID conflict that causes that problem
- D. You forgot to set the SCSI-ID #8 for the new disk

**Correct Answer:** A

**Section:** Part 8

**Explanation**

#### **Explanation/Reference:**

SCSI-I supports only 7 diskdrives per adaptor, if you need more devices switch to Wide-SCSI (15 drives) or install an additional SCSI adaptor.

**QUESTION 19**

Keyboards and mice are members of which class of USB devices?

- A. Communication Device Class
- B. Human Interface Device Class
- C. Mass Storage Device Class
- D. Data Interface Device Class

**Correct Answer:** B

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

Kernel 2.2 only supported HID-class USB1.0 devices.

**QUESTION 20**

The command `echo $!` will produce what output?

- A. the process id of last background command
- B. the exit status of the last command
- C. the exit status of the last background command
- D. the process id of the current shell
- E. the name of the command being executed

**Correct Answer:** A

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

`$?` is the exit code of the last command

`$$` the process id of the current shell or script

`$_` the name of the last argument of the last command (or the command itself if no argument was given)

`$0` the name of the script/command being executed

**QUESTION 21**

What command will print a list of usernames (first column) and their corresponding user id (uid, third column) from `/etc/passwd`?

- A. `cut -d: -f1,3 /etc/passwd`
- B. `chop -c 1,3 /etc/passwd`
- C. `tac 1-3 /etc/passwd`
- D. `fmt -u /etc/passwd`

**Correct Answer:** A

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

From the man pages:

`cut` - remove sections from each line of files

`/etc/passwd` entries are separated by ":", so use option `"-d:"` and use `-f` to only get specific columns.

**QUESTION 22**

In order to append the output of `ls` to a file called `bazz`, which of the following command lines would you use?

- A. ls > bazz
- B. ls > & bazz
- C. ls &> bazz
- D. ls >> bazz

**Correct Answer:** D

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

Use >> to append text to files (file will be created if it does not exist)

>, >& and &> redirect file descriptors (like stdout and stderr)

#### QUESTION 23

Which of the following sed commands will replace all instances of the string foo with the string foobar changing the file file1.txt in place?

- A. sed 's/foo/foobar/g' file1.txt
- B. sed 's/foo/foobar/g' file1.txt > file1.txt
- C. sed 's/foo/foobar/g' file1.txt | file1.txt
- D. sed -i 's/foo/foobar/g' file1.txt
- E. sed -i 's/foo/foobar/g' file1.txt > file1.txt

**Correct Answer:** D

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

When using the option -i, --in-place sed creates no output, but changes the source file itself. You can not use redirection (B) because file1.txt would be empty before starting sed.

#### QUESTION 24

When reading man pages, a lot of extra characters are shown on screen.

Which of the following commands can help to deal with this problem?

- A. col
- B. grep
- C. more
- D. pg
- E. row

**Correct Answer:** A

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

???

#### QUESTION 25

Which of the following commands is run last during boot on a system with quotas enabled?

- A. fsck

- B. mount
- C. quotacheck
- D. quotaon

**Correct Answer:** D

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

???

#### **QUESTION 26**

Select the line that best represents what permissions the /etc/passwd file should have

- A. -rw----- 1 root root 531 Apr 3 12:36 /etc/passwd
- B. -rw-r--r-- 1 root root 531 Apr 3 12:36 /etc/passwd
- C. -rw-r--r-- 1 1 1 531 Apr 3 12:36 /etc/passwd
- D. all answers listed are not correct
- E. all answers listed are correct

**Correct Answer:** B

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

All Users should be able to read /etc/passwd to gain certain important information about users and groups.

C) indicates that someone deleted the root user from the system

#### **QUESTION 27**

You are using quota on your system. How can you see disk quota details?

- A. repquota
- B. quota-l
- C. quota
- D. quotacheck
- E. quota --list

**Correct Answer:** A

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

#### **QUESTION 28**

Which of the following commands will print the inode usage on each mounted filesystem?

- A. du -i
- B. df -i
- C. lsfs -i
- D. printfs -i

**Correct Answer:** B

**Section:** Part 8

**Explanation**



**Explanation/Reference:**

du -i is an invalid option  
lsfs and printf's do not exist

**QUESTION 29**

What is the default process priority when a process is started using the nice command?

- A. -10
- B. 10
- C. 20
- D. 0

**Correct Answer:** B

**Section:** Part 10

**Explanation****Explanation/Reference:**

From the man pages:  
nice - run a program with modified scheduling priority  
-n, --adjustment=N add integer N to the niceness (default 10)

**QUESTION 30**

Which of the following commands will NOT update the Modify timestamp on the file /tmp/myfile.txt?

- A. file /tmp/myfile.txt
- B. echo "Hello" >/tmp/myfile.txt
- C. sed -i "s/1/2/" /tmp/myfile.txt
- D. echo -n "Hello" >/tmp/myfile.txt
- E. touch /tmp/myfile.txt

**Correct Answer:** A

**Section:** Part 10

**Explanation****Explanation/Reference:**

file just displays the MIME-type of a file, without changing anything in the file.

**QUESTION 31**

Bob accidentally created the subdirectory \bobsdir in his home directory. He tried to remove the subdirectory with the command rmdir \bobsfile only to receive the error, "No such file or directory."

Which command will remove the directory?

- A. rmdir 'bob/\bobsdir'
- B. rmdir "bob/\bobsdir"
- C. rmdir ~bob/ 'bobsdir'
- D. rmdir bob/\bobsdir
- E. rmdir ~bob//\bobsdir

**Correct Answer:** E

**Section:** Part 10

**Explanation****Explanation/Reference:**

~bob specifies the home directory of Bob, \\ means one literal backslash.

### QUESTION 32

While editing a file in vi, you realize that you are changing the wrong file.

What vi command sequence will allow you to quit without saving your changes?

- A. :Q!
- B. :q!
- C. :w!
- D. :wq!

**Correct Answer:** B

**Section:** Part 10

**Explanation**

**Explanation/Reference:**

### QUESTION 33

Which command will allow an administrator to adjust the number of mounts after which an existing filesystem will be checked by e2fsck?

- A. debugfs
- B. dumpe2fs
- C. mode2fs
- D. tune2fs
- E. mke2fs

**Correct Answer:** D

**Section:** Part 10

**Explanation**

**Explanation/Reference:**

From the man pages:

tune2fs - adjust tunable filesystem parameters on ext2/ext3/ext4 filesystems

### QUESTION 34

After modifying LILO's configuration file, what command should you run for the changes to take effect?

- A. kill -HUP 'pidof lilo'
- B. lilo-install
- C. lilo
- D. reboot

**Correct Answer:** C

**Section:** Part 11

**Explanation**

**Explanation/Reference:**

???if you edit grub.conf you need to run grub-update, if you edit the grub configuration files directly no action is required.

### QUESTION 35

After modifying GRUB's configuration file, what command should you run for the changes to take effect?

- A. kill HUP `pidof grub`
- B. grubinstall
- C. grub
- D. no action is required

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

???if you edit grub.conf you need to run grub-update, if you edit the grub configuration files directly no action is required.

#### **QUESTION 36**

What command should be invoked to give the user sally read and write, but not execute, access to the file strategy.txt using Extended ACL entries?

- A. setfacl -setperm sally:rw strategy.txt
- B. setfacl -m user::sally+rw strategy.txt
- C. setfacl -m user:sally:rw strategy.txt
- D. setfacl -setperm user:sally+rw strategy.txt

**Correct Answer:** C

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

## Exam D

### QUESTION 1

Which program finds only files that are in your PATH?

**Correct Answer:** which

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

From the man pages:

which returns the pathnames of the files (or links) which would be executed in the current environment, had its arguments been given as commands in a strictly POSIX-conformant shell. It does this by searching the PATH for executable files matching the names of the arguments. It does not follow symbolic links.

### QUESTION 2

To prevent users from being able to fill up the / partition, the \_\_\_\_\_ directory should be on a separate partition if possible because it is world writeable.

**Correct Answer:** /tmp

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

If you do not restrict the space that /tmp can use (either by making it an extra partition or by quota use), users can fill up the partition /tmp is in (root-Directory per default) making it impossible to create new files on that partition.

### QUESTION 3

What file contains kernel level logging information such as output from a network driver module when it is loaded?

**Correct Answer:** /var/log/messages

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

Kernel logging is different from distribution to distribution, but typically its /var/log/messages  
Debian uses /var/log/syslog

### QUESTION 4

In the vi editor, which of the following commands will delete the current line at the cursor and the 16 lines following it (17 lines total)?

**Correct Answer:** 17dd

**Section:** Part 9

**Explanation**

**Explanation/Reference:**

in vi you can prefix every command with the number of repetitions you need to do. in this example the command is "dd" (delete line) and since you want to delete 17 lines, you just prefix dd with 17.

### QUESTION 5

The USB device filesystem can be found under /proc/ \_\_\_\_\_ /usb/.

(Please fill in the blank with the single word only)

**Correct Answer:** bus

**Section:** Part 9

## **Explanation**

### **Explanation/Reference:**

At least in Debian this file does no longer exist. USB media is normally mounted in /media/usb.

### **QUESTION 6**

Which user-level program, when manually executed by the root user, is used to change the runlevel of the system? (Provide only the command with no additional options or parameters)

**Correct Answer:** init

**Section:** Part 10

## **Explanation**

### **Explanation/Reference:**

when using init as a command, init itself just runs telinit to send the new runlevel to the init process (with the PID 1)

### **QUESTION 7**

The priority of any process can range from -20 to \_\_\_\_\_ .

(Provide only the numerical value)

**Correct Answer:** 19

**Section:** Part 10

## **Explanation**

### **Explanation/Reference:**

there are 20 negative and 20 positive values for the priority (from -1 to -20 and 0 to 19)

### **QUESTION 8**

To change the priority of a running process, you use the \_\_\_\_\_ command

(Specify command only with no options.)

**Correct Answer:** renice

**Section:** Part 10

## **Explanation**

### **Explanation/Reference:**

nice is used to start processes with a specific priority, and renice is used to change the priority (only root, or process owner are allowed to change priorities of processes)

### **QUESTION 9**

An administrator has sent their current vi process with a PID of 1423 to the background on the command line.

Assuming no other processes are in the background, what single command with no options or parameters will bring the vi process to the foreground?

**Correct Answer:** fg

**Section:** Part 10

## **Explanation**

### **Explanation/Reference:**

### **QUESTION 10**

You want to display all currently mounted file systems. Which command would you use?

(Please enter only the command without arguments or options)

**Correct Answer:** mount  
**Section:** Part 10  
**Explanation**

**Explanation/Reference:**

**QUESTION 11**

The/etc/ \_\_\_\_\_ file lists currently mounted devices.

**Correct Answer:** mtab  
**Section:** Part 10  
**Explanation**

**Explanation/Reference:**

**QUESTION 12**

What umask value will result in the default access permissions of 600 (rw-----) for files and 700 (rwx-----) for directories?

(Provide only the numerical umask value)

**Correct Answer:** 077  
**Section:** Part 11  
**Explanation**

**Explanation/Reference:**

**QUESTION 13**

Which command will convert an RPM package file to a cpio archive?

(Provide only the command with no options or parameters)

**Correct Answer:** rpm2cpio  
**Section:** Part 11  
**Explanation**

**Explanation/Reference:**

**QUESTION 14**

What option, when passed to the yum command, will update the entire system?

(Specify ONLY the option name with no additional parameters)

**Correct Answer:** update  
**Section:** Part 11  
**Explanation**

**Explanation/Reference:**  
is like "apt upgrade"

**QUESTION 15**

Which command will disable paging and swapping on a device?

(Provide only the command with no additional options or parameters)

**Correct Answer:** swapoff

**Section:** Part 11

**Explanation**

**Explanation/Reference:**

#### QUESTION 16

An administrator has issued the following command:

```
# grub-install --root-directory=/custom-grub /dev/sda
```

In which directory will the new menu.lst file be found?

(Provide the **full directory path** only **without** the filename)

**Correct Answer:** /custom-grub/boot/grub

**Section:** Part 11

**Explanation**

**Explanation/Reference:**

menu.lst is per default in /boot/grub, but --root-directory adds /custom-grub in front of the original path

#### QUESTION 17

What command will print the shared libraries for the file /usr/lib/libpng12.so?

(Provide the **full** command with library name but **without** any other options or parameters)

**Correct Answer:** ldd /usr/lib/libpng12.so

**Section:** Part 11

**Explanation**

**Explanation/Reference:**

#### QUESTION 18

Which environment variable you have to setup to use shared libraries that are not in the standard search path?

**Correct Answer:** LD\_LIBRARY\_PATH

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

#### QUESTION 19

You are formatting a single hard disk for a Linux install.

What is the maximum number of primary partitions you can create?

**Correct Answer:** 4 -or- four

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

#### QUESTION 20

What command with all options and/or parameter will send the signal USR1 to any executing process of

program apache2?

**Correct Answer:** killall -s SIGUSR1 apache2 -or- killall -10 apache2

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

From the man pages:

killall - kill processes by name

#### **QUESTION 21**

What command can put suspended jobs into the background?

**Correct Answer:** bg

**Section:** Part 8

**Explanation**

**Explanation/Reference:**

#### **QUESTION 22**

Which command (without options) would you use to display how much space is available on all partitions?

**Correct Answer:** df

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

From the man pages:

df - report file system disk space usage

du - estimate file space usage (space used on a partition)

#### **QUESTION 23**

You have written a custom tool on your local system. Following the File Hierarchy Standard (FHS), where should you install the binaries to be available to all users on your system?

**Correct Answer:** /usr/local/bin

**Section:** Part 4

**Explanation**

**Explanation/Reference:**

#### **QUESTION 24**

You are compiling some software from source. After running ./configure with the appropriate arguments and no errors, what is the next command to run?

**Correct Answer:** make

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

#### **QUESTION 25**

Which utility can be used to convert a .rpm package to .deb package format?  
(Enter command without any arguments)

**Correct Answer:** alien



## Section: Part 5

### Explanation

#### Explanation/Reference:

### QUESTION 26

Which file the /proc filesystem lists parameters passed from the bootloader to the kernel?

**Correct Answer:** cmdline

## Section: Part 6

### Explanation

#### Explanation/Reference:

Example:

```
$ cat /proc/cmdline
```

```
BOOT_IMAGE=/vmlinuz-2.6.32-24-generic root=/dev/sda1 ro
```

### QUESTION 27

You suspect that a new ethernet card might be conflicting with another device. Which file should you check within the /proc tree to learn which IRQs are being used by which kernel drives?

**Correct Answer:** interrupts

## Section: Part 1

### Explanation

#### Explanation/Reference:

The Linux /proc Directory is a Virtual Filesystem provided by linux kernel. /proc contains files and directories that let system administrators and programmers access system information. The file /proc/interrupts file contains information on interrupts and IRQs.

Example:

```
$ cat /proc/interrupts
```

	CPU0	CPU1		
0:	25	14	IO-APIC-edge	timer
1:	4710	1831	IO-APIC-edge	i8042
4:	0	2	IO-APIC-edge	
6:	0	5	IO-APIC-edge	floppy
7:	1	0	IO-APIC-edge	parport0
8:	0	1	IO-APIC-edge	rtc0
9:	0	0	IO-APIC-fasteoi	acpi
12:	2493	219349	IO-APIC-edge	i8042
14:	0	0	IO-APIC-edge	pata_amd
15:	133	25008	IO-APIC-edge	pata_amd
16:	136945	7434	IO-APIC-fasteoi	nvidia
17:	0	1172	IO-APIC-fasteoi	eth0_rename
20:	0	0	IO-APIC-fasteoi	ohci_hcd:usb2
21:	701	2368	IO-APIC-fasteoi	ehci_hcd:usb1
22:	4	412	IO-APIC-fasteoi	sata_nv, HDA Intel
23:	90839	14138	IO-APIC-fasteoi	sata_nv, eth4
NMI:	0	0	Non-maskable interrupts	
LOC:	236626	98439	Local timer interrupts	
SPU:	0	0	Spurious interrupts	
PMI:	0	0	Performance monitoring interrupts	
PND:	0	0	Performance pending work	
RES:	1205807	1212171	Rescheduling interrupts	
CAL:	1078	1174	Function call interrupts	
TLB:	87901	91058	TLB shootdowns	
TRM:	0	0	Thermal event interrupts	
THR:	0	0	Threshold APIC interrupts	
MCE:	0	0	Machine check exceptions	

MCP:	8	8	Machine check polls
ERR:	1		
MIS:	0		

#### QUESTION 28

You are building a server that will have many hardware and operating system upgrades. The server is the file server for all users on your 100 user network.

Which directory should have its own mountpoint and/or hard drive?

**Correct Answer:** /home

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

#### QUESTION 29

The \_\_\_\_\_ partition is used for virtual memory.

**Correct Answer:** swap

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

#### QUESTION 30

What command is used to display a file in octal format?

**Correct Answer:** od

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

#### QUESTION 31

You wish to execute two commands, one after the other. However, you only want the second command to execute if the first is successful.

Which character(s) do you put between the commands on the command line to accomplish this?

**Correct Answer:** &&

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

&& logical and (execute cmd2 ONLY if cmd1 was successful)

|| logical or (execute cmd2 only if cmd1 was NOT successful)

#### QUESTION 32

What program would you use to increase or decrease the priority of a command before it is executed?

**Correct Answer:** nice

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

use renice for already running processes, and nice to start processes with a specific priority.

**QUESTION 33**

You wish to send the output of a command to standard output (stdout) and save it to a file. The command to use is \_\_\_\_\_.

Do not specify any arguments.

**Correct Answer:** tee

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

**QUESTION 34**

What command returns the first few lines of a given file?

**Correct Answer:** head

**Section:** Part 2

**Explanation**

**Explanation/Reference:**

**QUESTION 35**

You have a text file with tab-separated values, but your application needs them space-separated. What command would you use from the Bash shell to achieve this?

Please fill in the command only, without any options.

**Correct Answer:** expand

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

From the man pages:

expand - convert tabs to spaces

**QUESTION 36**

In which directory must definition files be placed to add additional repositories to yum?

**Correct Answer:** /etc/yum.repos.d

**Section:** Part 3

**Explanation**

**Explanation/Reference:**

YUM-Repositories are all files matching /etc/yum.repos.d/\*.repo

apt repositories are stored in /etc/apt/sources.list or /etc/apt/sources.list.d/\*.list

**QUESTION 37**

You've downloaded an image file of a boot floppy disk to your hard drive. What is the best utility to create a boot floppy from the disk image?

Specify a single command without any options or parameters.

**Correct Answer:** dd

**Section:** Part 9

## **Explanation**

### **Explanation/Reference:**

Example:

```
dd if=floppy-image.img of=/dev/fd0
```

### **QUESTION 38**

You want a process to keep running after you have logged out. What command to use ?

**Correct Answer:** nohup

**Section: (none)**

## **Explanation**

### **Explanation/Reference:**

nohup - run a command immune to hangups, with output to a non-tty

### **QUESTION 39**

What is the name of the grub config file? (Provide only the filename)

**Correct Answer:** menu.lst

**Section: (none)**

## **Explanation**

### **Explanation/Reference:**

#### **Configuring grub v1**

The configuration file is /boot/grub/menu.lst Under Debian, the grub configuration file is updated automatically, when you install a new kernel. This is done automatically by update-grub. You can edit the settings in /boot/grub/menu.lst. Make sure you read the update-grub(8) manpage from your distribution.

#### **Configuring grub v2**

The configuration file is /boot/grub/grub.cfg, but you shouldn't edit it directly. This file is generated by grub v2's update-grub(8), based on:

1. The script snippets in /etc/grub.d/
2. The configuration file /etc/default/grub

To configure grub "v2", you should edit /etc/default/grub, then run update-grub. Advanced configuration are achieved by modifying the snippets in /etc/grub.d/.

## Exam E

### QUESTION 1

Which command will print line numbers before each line in a file?

- A. ln
- B. nl
- C. cat -n
- D. numline

**Correct Answer:** B

**Section:** Part 5

**Explanation**

**Explanation/Reference:**

???

cat -n prints a line number in front of EVERY line of the file, where nl does not number the empty lines. In my opinion both B and C would be correct

???

### QUESTION 2

You want to examine the changelog for the installed package postfix. Which command will display the changelog?

- A. rpm -Vc postfix
- B. rpm -qpil postfix
- C. rpm --changelog postfix
- D. rpm -q --changelog postfix
- E. rpm -qa --changelog postfix

**Correct Answer:** D

**Section:** Part 6

**Explanation**

**Explanation/Reference:**

???

D) and E) are both correct

???

### QUESTION 3

In order to save and restore your sound card's configuration between sessions, the ALSA sound system uses what program?

- A. setalsa
- B. setsound
- C. soundctl
- D. alsactl
- E. alsaset

**Correct Answer:** D

**Section:** Part 7

**Explanation**

**Explanation/Reference:**

??? not part of 117.101 ???



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