

1. Name 6 different Linux distributions, and state which major packaging format they use (e.g. RPM or DEB). [3 marks]

Linux Distribution	Packaging format
Scientific Linux	RPM
Ubuntu	deb
Debian	deb
Linux mint	deb
SUSE Linux	RPM
Fedora	RPM

2. Give a brief overview of the different sections of the Man Pages (note: not the parts of an individual page NAME, SYNOPSIS etc). [8 marks]

The manual is generally split into eight numbered sections, organized as follows:

SN	Sections	Overview
1	General commands	A command is a directive to a computer program acting as an interpreter of some kind, in order to perform a specific task
2	System calls	A system call is the programmatic way in which a computer program requests a service from the kernel of the operating system it is executed on
3	Library (in particular C library)	a library is a collection of non-volatile resources used by computer programs, often to develop software. These may include configuration data, documentation, help data, message templates, pre-written code and subroutines, classes, values or type specifications.
4	Device file	An interface for a device driver
5	File formats	Specifies how bits are used to encode information in a digital storage medium
6	Games and screensavers	Electronic games and screensavers
7	System administration commands and daemons	Commands that run in the backgrounds
8	Miscellanea	Other required

3. Describe how you would change the shell prompt to make it BOLD and display in the colour red. [2 marks]

Command line for the same is

```
PS1='[\u@\h \w]\$ '
```

Bold

```
export PS1="\u@\h:\w $ \[$(tput bold)\]"
```

Red in color

```
export PS1="\[$(tput setaf 1)\]\u@\h:\w $ "
```

Bold and red display

```
export PS1="\[$(tput setaf 1)\]\u@\h:\w $ \[$(tput bold)\]"
```

4. Given a directory of files, how would you list the files while sorting them in file size in descending order?

```
ls -lS
```

(Capital S for ordering)

And in ascending order? [2 marks]

```
ls -ls
```

5. Starting in your home directory (on 'chuck'), list at least two ways to change to the '/tmp' directory. [1 marks]

- 1) `cd home/bhatnags/tmp`
- 2) `cd tmp`

6. On the command-line, give at least 2 examples of how would you delete a file called '-i' (without the quotes). [3 marks]

- 1) `rm i`
- 2) `rm -i i`

7. Give at least 2 ways to show the contents of a directory called "My Docs" using 'ls -l'. I.e. how do you get around SPACES in a file/folder name using the shell. [1 marks]

- 1) `ls -l 'My Docs'`
- 2) `ls -l --all 'My Docs'`

8. Using the 'date' command, how would you display the current date/time in the following format: YYYYMMDDHHMMSS.

```
date +%Y%m%d%H%M%S
```

How would you display the date in that format from exactly 1 week ago from the time you run the command? [2 marks]

```
date - - date="1 week ago" +%Y%m%d%H%M%S'
```

9. What is the Unix Epoch?

The Unix epoch (or Unix time or POSIX time or Unix timestamp) is the number of seconds that have elapsed since January 1, 1970 (midnight UTC/GMT), not counting leap seconds (in ISO 8601: 1970-01-01T00:00:00Z)

How would you display it using the 'date' command? [2 marks]

`date +%s'`

10. Using the 'cal' command, how would you display the full calendar year, with weeks starting in a Monday? [1 marks]

`cal -m 2017`

11. What is the purpose of the PATH environment variable.

PATH is an environment variable on Unix-like operating systems, DOS, OS/2, and Microsoft Windows, specifying a set of directories where executable programs are located.

How would you add a new location to it? [2 marks]

Let the new path you want to add be

`export PATH=$PATH:/usr/support/bin`

Check if the path is there or not

`echo $PATH`

`export PATH=$PATH:/usr/support/bin`

Check if it's been added

`echo $PATH`

12. Using shell wildcards (fileglobs), how would you list: [4 marks]

All files starting with the letter k?

`ls k*`

All files starting with the letter k, with a .txt extension?

`ls k*.txt`

All files starting with an upper case letter?

`ls [[:upper:]]*`

All files with 4 characters, where the third character is a number?

`ls ??[0:9]?`

13. What is the purpose of the umask? How would you ensure that every new file that you create has the following permissions: full access for you, read-only access for your group, and no access for anyone else? [3 marks]

Purpose of Umask: Umask(User file creation mode mask) controls the default access permissions of read - write - execute to user/group/everyone on newly created files

For creating the following permissions:
full access for you(rwx),
read-only access for your group(r--),
and no access for anyone else(---)

Run the below commands:

```
umask 000
```

```
umask 037
```

14. How would you change the behaviour of the delete command to prompt for confirmation before deleting files? [2 marks]

Change command from

```
rm unwantedfile to
```

```
rm -i unwantedfile
```

References:

- 1) https://en.wikipedia.org/wiki/Comparison_of_Linux_distributions
- 2) <https://www.howtogeek.com/191207/10-of-the-most-popular-linux-distributions-compared/>
- 3) https://en.wikipedia.org/wiki/Man_page#Manual_sections
- 4) <https://www.cyberciti.biz/faq/bash-shell-change-the-color-of-my-shell-prompt-under-linux-or-unix/>
- 5) <https://unix.stackexchange.com/questions/31695/how-to-make-the-terminal-display-user-machine-in-bold-letters>
- 6) <http://www.unix.com/unix-for-dummies-questions-and-answers/30052-order-size.html>
- 7) <https://www.computerhope.com/unix/ucal.htm>