

GOVT. WOMEN ENGINEERING COLLEGE, AJMER

1st Mid-Term Exam Session 2017-2018

MCA- IV Semester

Subject:- Open Source Operating System

Time- 1 hr

Max. Marks: 20

- Ques 1. Compare different types of shells. 3
- Ques 2. List different distributions of linux. 6
- Ques 3. Explain file management and commands chmod, chown and chgrp. 4
- Ques 4. Explain following commands: 4
- cat
 - cp
 - mv
 - uname
- Ques 5. Explain architecture of Linux. 3

Answers:

A1.)

Shells ->	BASH(Bourne Again)	CSH(C Shell)	KSH(Korn)	SH(Bourne Shell)
Developed	Brain Fox and Chet Ramey	Bill Joy	David Korn	Stephen R. Bourne
Where	Free software foundation	University of California	AT & T Bell Labs	AT & T Bell Labs
Introduced	1989	1978	1983	1977
Location	/bin/bash	/bin/csh	/bin/ksh	/bin/sh
Feature	Most common, Freeware,	Similar to C programming	Easiest to use, member of	Original unix shell

	default in linux		bourne shell	
Shell Prompt	\$	%	\$	\$

A2.)

Distributions of Linux:

1. **Ubuntu:**

Announced in 2004, Ubuntu is based on Debian unstable. Ubuntu is the most widely used and most popular Linux distribution today. Ubuntu started with the Gnome desktop, but a few years ago Ubuntu developed its own desktop environment named Unity. The Ubuntu installation process is easy and thus is popular with those new to Linux.

2. **Linux Mint:**

Mint is a Linux distribution built on top of Ubuntu. It uses Ubuntu’s software repositories, so the same packages are available on both. Originally, Mint was an alternative distribution loved mainly because it included media codecs and proprietary software that Ubuntu didn’t include by default. Mint takes more relaxed approach to software updates and won’t automatically install critical software updates.

3. **Debian:**

Debian is an operating system composed only of free, open-source software. The Debian project has been operating since 1993. This widely respected project is still releasing new versions of Debian, but it’s known for moving much more slowly than distributions like Ubuntu or Linux Mint.

4. **Fedora:**

Fedora is a project with a strong focus on free software. Fedora doesn’t make its own desktop environment or other software. Instead, the Fedora project uses “upstream” software, providing a platform that integrates all this upstream software without adding their own custom tools. Fedora is sponsored by Red Hat, and is the foundation for the commercial Red Hat Enterprise Linux project.

5. **Red Hat Enterprise Linux:**

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6. **Knoppix:**

It is an operating system based on debian. Knoppix mostly consists of free and open source, but also includes some proprietary software.

A3.) File Management:

All data in Linux is organized into files.

there are three basic types of files –

- **Ordinary Files** – An ordinary file is a file on the system that contains data, text, or program instructions. In this tutorial, you look at working with ordinary files.
- **Directories** – Directories store both special and ordinary files. For users familiar with Windows or Mac OS, Unix directories are equivalent to folders.

Listing Files:

To list the files and directories stored in the current directory, use the following command –

```
$ls-l
```

Output:

```
-rw-rw-r-- 1 amrood amrood      5341 Dec 25 08:38 um1.jpg
```

Where,

- **First Column** – Represents the file type and the permission given on the file. Below is the description of all type of files.
- **Second Column** – Represents the number of memory blocks taken by the file or directory.

- **Third Column** – Represents the owner of the file. This is the Unix user who created this file.
- **Fourth Column** – Represents the group of the owner. Every Unix user will have an associated group.
- **Fifth Column** – Represents the file size in bytes.
- **Sixth Column** – Represents the date and the time when this file was created or modified for the last time.
- **Seventh Column** – Represents the file or the directory name.

Commands:

A. chmod:

it is used to change access permission for file and directory. It changes the permission of given file according to mode i.e. symbolic(u,g,o; +,- ; r,w,x) or numeric mode(0-7)

Syntax:

```
Chmod options permissions filename
chmod[option]...mode[Mode]... filename
```

Options Used:

- -f,--silent , --quit: suppress most error messages.
- -R: change files and directories recursively.
- -h: display help and exit.

Example:

```
$ls-l
$ chmod u+x MCA.exe
$ ls-l MCA
```

B. chown:

It is used to change the owner of the file. It transfers the ownership of a file to the user. Changing ownership requires super user permission so that first we have to login into admin mode by *su* command.

Options:

- -c, --change: report only when change is made.
- --help: display the help and exit.

Example:

```
$su
password***
#ls-l file1
-rwxr----x 1 kumar group 447 jun 10:11:18 file1
#chown Sharma file1
#ls-l file1
-rwxr----x 1 sharma group 447 jun 10:11:18 file =1.
```

C. chgrp:

It is used to change the owner of group. Here, no super user's permission is required.

Options:

- -c, --change: describes the action for each file whose group actually changes.
- --silent:do not print the error message about the file.
- --quit: whose group cannot be changed.

Syntax:

```
$chgrp root file
```

Example:

```
$chgrp dba file2
$ls-l file2
-rwxr----x 1 kumar dba 447 jun 10:11:18 file2.
```

A4.)

- **cat:**
used to create single or multiple files.

Syntax:

cat[option][file]

Options:

- -n: number all output lines.
- -e: Display control and non-printing characters followed by a \$ symbol at the end of each line.
- -b: number non-blank output lines.

Example:

```
$ cat file1 file2
```

- **cp:**
used to copy files and directories.

Options:

- > -a: archive files.
- > -R: recursive copy.
- > -L: follow symbolic links.

Syntax:

```
$ cp [options] source destination
```

Example:

```
$ cp file1 file2
```

- **mv:**
used to move files and directories.

Options:

- > -i: interactive prompt before overwrite.
- > -u: update when source is newer than destination.

Syntax:

\$ mv [options] source destination

Example:

\$ mv file1 file2

- **uname:**
prints information about the current system.

Options:

- > -a: prints all information about the system.
- > -s: prints kernel name.
- > -n: prints network node host name.

Syntax:

\$ uname [options]...

Example:

\$ uname -a

A5.) ARCHITECTURE OF LINUX:

The architecture of a Linux System consists of the following layers –

- **Hardware layer** – Hardware consists of all peripheral devices (RAM/ HDD/ CPU etc).

- **Kernel** – It is the core component of Operating System, interacts directly with hardware, provides low level services to upper layer components.
- **Shell** – An interface to kernel, hiding complexity of kernel's functions from users. The shell takes commands from the user and executes kernel's functions.
- **Utilities** – Utility programs that provide the user most of the functionalities of an operating systems.



