Open Source OS Question Bank for Final Exam for students

Lecture 1 - Introduction to Linux

Q1\ The Minix source code served as a starting point for _____ Operating System

Q2\ _____ is Unix-like OS originally developed by Andrew Tanenbaum as an educational tool to demonstrate operating system programming.

Q3\ Linux systems include _____, _____ , and _____

Q4\ Linux restricts access to important operations to users with _____ privileges

Q5\ _____ comprises the Linux kernel, which is the core of the operating system, and packages that make up all the commands you can run on the system

Q6\ Linux Distributions similarities are: _____, _____, _____ and _____

Q7\ Linux Distributions differences are _____, _____, _____, and _____.

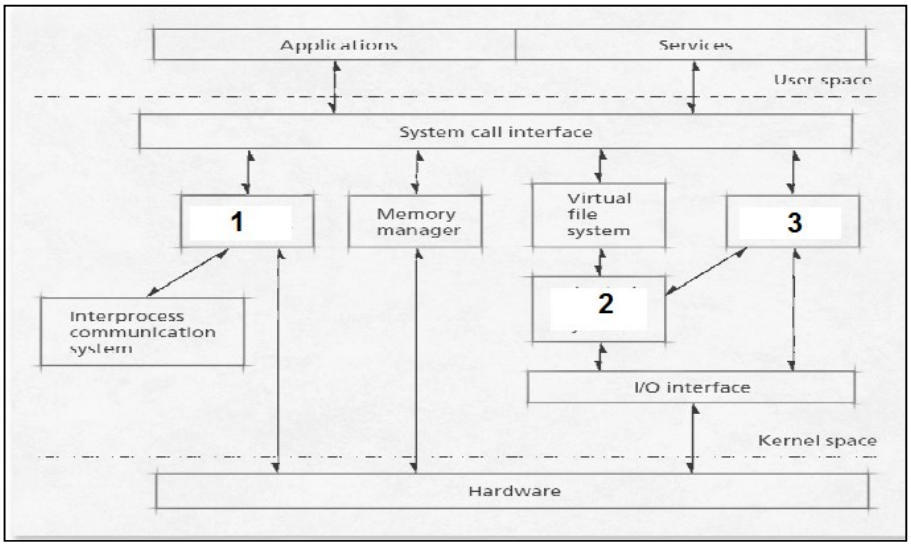
Q8\ _____ Lowest level interface that provides to higher GUI layers mechanisms to create and manipulate graphical components

Q9\ _____ Builds on mechanisms in the X Window System interface to control the placement, appearance, size and other window attribute

Q10\ _____ examples are KDE, GNOME, and Unity.

Q11\ List Six primary subsystems

Q12\ In the diagram below indicates the Linux subsystems that are hidden by numbers 1, 2 and 3.

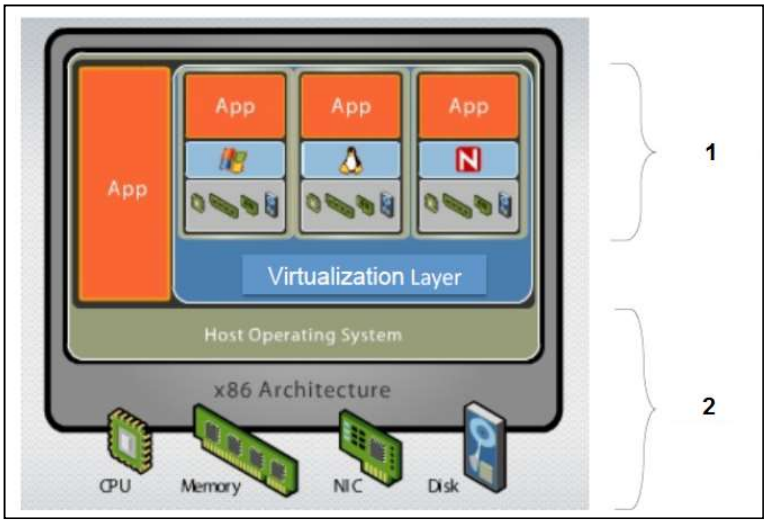


Q13\ _____ is an application that can run on MS Windows, Mac OSX, or Linux and then it can create Virtual computers.

Q14\ The _____ OS is the one installed in the virtual computer, while the _____ OS is the one installed as main Operating System of the real computer.

Q15\ If you turn off your guest operating system, then memory, CPU are freed up and it will only take up space on _____.

Q16\ In the Virtual Box Architecture below indicate components indicated by the numbers 1 and 2.


App
App
App
App
Virtualization Layer
Host Operating System
x86 Architecture
CPU
Memory
NIC
Disk
1
2

Lecture 2 - Basic Commands

Q1\ _____ is command interpreter.

Q2\ In shell normal account prompt is _____ , while root account prompt is _____.

Q3\ List Four Shell types

Q4\ Shell goal is to provide _____ between user and system.

Q5\ In Linux, Folders are separated by _____

Q6\ folder/file _____ is directories to be traversed, starting from root directory, in order to reach that folder/file.

Q7\ Relate below folders in Linux with their usage

/		Temporary Files
/bin		Critical startup and configura0on files
/boot		Core operating system commands.
/dev		Default home directories for users.
/etc		Home directory for the superuser.
/home		Root directory.
/root		Device entries for disks, printers, pseudo terminals, etc.
/tmp		Kernel and files needed to load the kernel.

Q8\ Relate below commands in Linux with their usage

pwd		modify UID of a file.
cd		list folder contents in alphabetical order.
mkdir		remove files or folders.
ls		change to a different directory.
cp		copy files.
mv		move files (or rename).
rm		change user password.
nano		displays current directory
grep		create a new folder
passwd		modify file or directory permissions.
chmod		display the lines of a file that match a text pattern.
chown		Text editor in the terminal.
man		Displays username
whoami		formats and displays manual pages

Q9\ _____ are group of shell session variables with a pre-defined value

Q10\ _____ environment variables are internal to our shell session, _____ environment variables are common to every shell and other programs and users.

Q11\ Relate below Environment Variables in Linux with their usage

$PATH		root directory of current user
$HOME		user shell
$SHELL		indicates which are the directories where binaries can be found
$TZ:		Time Zone

Q11\ Fill the proper commands in the empty boxes below

```
student@Instructor:~$ [          ] labfolder1
student@Instructor:~/labfolder1$ [          ]
/home/student/labfolder1
student@Instructor:~/labfolder1$
```

```
student@Instructor:~$ [          ] labfolder1
student@Instructor:~/labfolder1$ ls -l
-rw-rw-r-- 1 student student 23 Feb 11 15:09 myfile1
student@Instructor:~/labfolder1$ [          ] myfile1
student@Instructor:~/labfolder1$ ls -l
total 0
student@Instructor:~/labfolder1$
```

```
student@Instructor:~$ [          ] labfolder1
student@Instructor:~/labfolder1$ ls -l
total 0
student@Instructor:~/labfolder1$ [          ] labfolder2
student@Instructor:~/labfolder1$ ls -l
drwxrwxr-x 2 student student 4096 May  4 18:39 labfolder2
student@Instructor:~/labfolder1$
```

Lecture 3: User and Permission Management

Q1\ The _____ file contains the user account information for the system.

Q2\ The _____ file contains encrypted passwords for the user accounts.

Q3\ The _____ file contains the list of groups.

Q4\ Root or Superuser account has elevated privileges to _____, _____, and _____ .

Q5\ Root user ID is _____and its group ID is _____ .

Q6\ Why root account should be limited?

Q7\ What are the recommended settings for root?

Q6\ Some Linux distributions such as Ubuntu _____ the root account by default

Q5\ To gain super user privileges, we have three options _____, _____, and _____.

Q6\ After issuing the su command, you will be prompted for _____ and a new _____ opened with the super user privileges.

Q7\ The command _____ allows user to issue a single command as root

Q8\ In Ubuntu the user created during installation will have certain administrative privileges, since it will be member of _____ by default

Q9\ The files and folders created with sudo will be owned by _____

Q10\ The syntax of adduser command is _____

Q11\ In Linux whenever a new user is created _____ will be created automatically.

Q12\ In _____ the option –r is used to remove the home directory when you delete the user.

Q13\ To add an existing user account to a group on the system, use the _____ command.

Q13\ To remove a user account from a group on the system, use the _____ command.

Q14\ When a user creates a new file or directory, he will be the _____ which can be changed by the command _____, while the group corresponding to that user will be the _____, which can be changed by the command _____.

Q15\ The syntax of the command chown is: chown _____ file or directory

Q16\ The syntax of the command chgrp is: chgrp group _____

Q17\ Define permissions and explain the nine permissions bit in each file and directory in Linux.

Q18\ File and directory access permissions are _____, _____, and _____

Q19\ Relate below permissions in Linux with their meaning

file read permission		to add, remove, and rename files in the directory
file write permission		to list contents of the directory,
file execute permission		to run the file as a program.
directory read permission		to allow entering a directory
directory write permission		to read a file
directory execute permission		to modify the file

Q20\ What permissions will the following command give : “sudo chmod 777 myfile” ?

Q21\What permissions will the following command give : “ sudo chmod 641 myfile” ?

Q22\What permissions will the following command give : “ sudo chmod 111 myfile” ?

Q23\What permissions will the following command give : “ sudo chmod 222 myfile” ?

Q24\What permissions will the following command give : “ sudo chmod 555 myfile” ?

Q25\What permissions will the following command give : “ sudo chmod 754 myfile” ?

Q26\What permissions will the following command give : “ sudo chmod 755 myfile” ?

Lecture 4: Booting and Shut Down

Q1\ Draw the Linux Booting Stages Diagram with all details. Also list Booting Stages in Sequence.

Q2\ Define BIOS and list its main functions in sequence.

Q3\ Define MBR indicating its location and size, and its main function

Q4\ Explain the MBR structure

Q5\ Define GRUB and explain its main features.

Q6\ When GRUB will boot to default operating system?

Q7\ When GRUB menu will display? And for what purpose?

Q8\ GRUB searches and loads the compressed kernel image file located in _____

Q9\ GRUB mounts the _____ as an initial root file system that is mounted before the _____

Q10\ Define chain loading and draw an example diagram.

Q11\ Changes made in the GRUB menu-settings file _____ will not take effect and overwrites GRUB configuration file _____ until the following command is executed _____

Q12\ GRUB uses a _____ naming scheme for disk indexes but uses a _____ naming scheme for partition indexes.

Q13\ Explain the meaning of GRUB naming below:

(hd0, msdos1)

(hd1, msdos2)

(hd0, gpt2)

(hd2, gpt2)

fd0

Q14\ Define Kernel.

Q15\ Indicate Kernel File System mounting stages.

Q16\ After mounting file system, Kernel executes init program located in _____ and loads _____

Q17\ Systemd is _____

Q18\ The _____ defines the services that systemd starts.

Q19\ List the system initialization tasks performed by systemd.

Q20\ Define Linux Run Level, and list the Linux Run Levels with their explanation and corresponding target file system.

Q21\ The command to show current runlevel is _____, while the command to change the next boot run level is _____

Q22\ Define Single User mode and indicate its shell type and list two usage points

Q23\ When the system is initiated for Shutdown or Reboot, It _____, also, it wont allow _____ if the time argument is used.

Q24\ In modern Linux, _____ is used to manage all services and processes of the system, so the legacy commands will use _____ command to halt, poweroff, shutdown, or reboot respectively.

Q25\ List and explain System Administrator Procedures for Shutting Down a Server.

Q26\ List the Linux Essential Shutting Down Commands and explain the differences between them with drawings.

Q27\ Explain the difference between sleep and hibernate Linux modes

Q28\ Explain the meaning of below commands

sudo shutdown –h +15

sudo systemctl suspend

sudo systemctl hibernate

Lecture 5: Process and Package Management

Q1\ Define Process

Q2\ Each user starting a process becomes its _____

Q3\ some processes started by the system can be owned by the _____

Q4\ The process owner has privileges on his process like (_____, _____, and _____), while •

The 'root' user have _____ on all system processes.

Q5\ The process inherits its _____ when trying to access resources

Q6\ systemd process is the _____ of all processes in the whole system, and it has

PID = _____ and

PPID = _____

Q7\ Define Process Group

Q8\ List and define the three Process Types in Linux

Q9\Define Job then list and define its two modes.

Q10\ List and define Process Attributes in Linux

Q11\ Explain the usage of below commands:

pstree

ps -e

ps -u

top

kill

kill –STOP

kill -CONT

Q11\ List and define the three Inter-Process Communication mechanisms in Linux.

Q12\ List and define the two Socket Types in Linux

Q13\ Define Package Management, Meta-package manager, and Software Package, Package Repositories , Advanced Packaging Tool "apt"

Q14\ Packages depend on Debian based distributions come in _____, while on Red Hat based distributions come in _____

Q15\ In package file name format The _____ is normally to state what kind of processor this package is targeting.

Q16\ Explain the usage of below commands:

dpkg -i <package file>

dpkg -r <package name>

dpkg -l

dpkg -L <package name>

Q17\ Explain the main problem with dpkg command.

Q18\ To install a certain program or library using apt command, all you need is to know is the _____ that contains it via web search

Q19\ List the apt tool functions.

Q20\ Explain the usage of below commands:

sudo apt-get install <package name> -y

sudo apt-get remove <package name>

sudo apt-get purge <package name>

sudo apt-get autoremove

sudo apt-get -f install

sudo apt-get update

Q21\ _____contains a list of the URLs for the servers containing the different repositories to search for packages.

Q22\ the apt-get update command gets information for each package: _____, _____, and _____.

Lecture 6: File Systems

Q1\ Linux is _____ , which improves its portability from one system to another

Q2\ Define device driver and indicate its main function.

Q3\ Linux treats devices as if they are _____

Q4\ List and define the Classes of Device Drivers.

Q5\ Linux identifies each device by two numbers: Major number identifies the _____ , and Minor number specifies the _____.

Q6\ In Linux various special device files can be found under the directory _____

Q7\ According to Linux Device Naming, explain the below device names:

fd0	
sda	
sdb	
sda1	
sdb5	
sr0	
null	

Q8\ Define Disk Partitioning, Partition, Primary Partition, and Extended Partition.

Q9\ List and explain the Limitations of Legacy MBR Partition Management

Q10\ _____ allows the use of larger hard disks in Legacy MBR Partition Management

Q11\ In Legacy MBR Partition Management, Extended partitions can contain many _____

Q12\ List and explain the features of GUID Partition Management (GPT)?

Q13\ List two examples of GPT Management tools and indicate their usage and the difference between them.

Q14\ Define File System, Journaling filesystem, inode, Superblock and mounting.

Q15\ At least one partition is mounted during booting process. (T/F)

Q16\ Mounting can be done for CD-ROMs only. (T/F)

Q17\ Why storage devices should be mounted in empty directories?

Q18\ Define following File Systems' Types in Linux: swap, NTFS, VFAT, and XFS.

Q19\ umount command _____ and it requires that _____

Q20\ Explain the usage of below commands:

df	
mount	
umount	

Q21\ Define hard link, symbolic link and indicate which one can only work within the same file system?

Lecture 7: Linux Networking

Q1\ Each host can have only one network interface (T/F)

Q2\ Each interface can have One MAC address. (T/F)

Q3\ Each interface can have One IP address. (T/F)

Q4\ Each machine can have one routing table. (T/F)

Q5\ Define Software Loopback interface. What is it used for?

Q6\ Define Loopback IP address and give its value.

Q7\ _____ command is short for _____, it prints information about available interfaces and their configuration.

Q8\ After running ifconfig, The _____ of the interface will be listed next to Hwaddr.

Q9\ After running ifconfig, The IP address of the interface will be listed next to _____

Q10\ _____ can be used to bring the interface up and down

Q11\ Changes made with ifconfig are not permanent. (T/F)

Q12\ Define ARP protocol and ARP Table

Q13\ The ARP Table is _____, but users on a network can also configure a _____ ARP entries containing IP addresses and MAC addresses.

Q14\ Explain the action of each command below

arp -a

arp -s hostname hwaddr

arp -d hostname

Q15\ Define DNS, URL, FQDN

Q16\ For below URL below:

https://aws.amazon.com/

Identify the below items

TLD _____, Domain: _____, subdowmain: _____, protocol: _____

Q17\ Explain the use of nslookup command.

Q18\ Explain the use of /etc/hosts file

Q19\ /etc/hosts file is effective network-wide

Q20\ In Linux by default the system looks at hostnames in _____ then _____

Q21\ Define DHCP

Q22\ The items that DHCP server assigns to DHCP client are:

1) _____
2) _____
3) _____
4) _____

Q23\ In DHCP, each IP is "leased" from _____ the DHCP server manages.

Q24\ In DHCP, the lease expiration time is configurable on the DHCP server. (T/F)

Q25\ To check the status of the service use below command: _____

Q26\ Explain the function of the command:

sudo systemctl enable application

and compare it with the command

sudo systemctl start application

Q27\ Explain the function of the command:

sudo systemctl disable application

and compare it with the command

sudo systemctl stop application

Q28\ ping command in Linux sends _____ packet to a host in order to _____.

Q29\ _____ command shows network status.

Q30\ The command (nestat –r) displays the route table. (T/F)

Q31\ _____ command is used for monitoring sent/received data for each connection.