**1 Marks Question**

1. Give the resource to know the compatibility list with RedHat Linux?

Ans: http://hardware.redhat.com/hcl

1. What MBR stands for?

Ans: Master Boot Reader.

3. What is a boot loader?

Ans: It is a small program stored in the MBR or GUID partition table that helps to load an operating system into memory.

4GRUB stands for –

Ans: Grand Unified Bootloader

5.LILO stands for –

Ans: The Linux Loader

6.\_\_\_\_is device name given for the 1st logical partition

Ans: /dev/hda5

7. What is mounting a file system?

Ans: It maps partitions onto reference points in the filesystems.

8.What is a Firewall?

Ans: It is a system of network security that controls and filters the traffic on the rule’s predefined set.

9.Which is a default Boot Loader comes in Linux?

Ans: GRUB 2

10.Which are the minimum partition required to install the linux?

Ans: The root partition (demoka by /) and the swap partition

**5 Mark Questions**

1. What are the different alternate for installing RedHat Linux on your local system?

Red Hat Linux provides many ways to perform  the installation such as

− booting from CD-ROM,

− booting from local disk,

− FTP, HTTP and NFS

2) What are the hardware issues of RedHat Linux?

*Architectures*: Linux can run on a variety of hardware platforms for example x86, Itanium and Compaq Alpha. This course willconcentrate on the x86 platform. However a similar process can be used to install Linux on other architectures.

*Device drivers:* Unfortunately the latest and greatest hardware is sometimes not supported by Linux.

This is due to the software development community not having a fixed relationship with the hardware vendors. The Red Hat hardware compatibility list can be found at http://hardware.redhat.com/hcland is worth checking if you wish to buy a new machine to run Red Hat on. A list of supported graphics cards for Linux can be found at:  http://www.xfree86.org.

*CPUs:* A maximum of sixteen CPUs are supported by the kernel. *Memory:* The 2.4 kernel which is supplied with Red Hat Linux 9 can autodetect up to 1 gigabyte of memory on a 32-bit processor machine

3) Write a note on disk structure and partitioning.

Basic Disk Structure:

-Master Boot Record (MBR)

-The number of partitions.

Master Boot Record:

- Partition table stores info on how the partitons are laid out.

- Boot loader stores info on where to boot from.

Partitions:

- Up to 4 primary partitions.

- Can convert a primary partition into an extended partition.

- Extended partitions are containers for logical partitions.

- Up to 12 logical partitions can exist within an extended partition

Partitioning provides a mechanism that allows discs to be spilt into slices

These smaller slices are easier to manage and also provide a certain amount of flexibility.

Each hard drive can be split up into a maximum of four primary partitions. If additional partitions are required then one of the four primary partitions can be divided further by making an extended partition. An extended partition is simply a container which holds logical partitions

Druid:

- Easy to use for standard partitioning schemes.

- Makes intelligent assumptions about the use of extended and logical partitions. - You can assign mount points to partitions.

- *BUT:*

- it does impose restrictions.

- you can’t edit the existing partition set up.

- it decides where partitions go on the disk and what device names are allocated

**Disk partitioningutilities** The partitioning tool used by the installation program is called Disk Druid and it is only available from within the Red Hat installation program.

It offers a graphical representation of your hard drive(s) and allows you to partition your hard drive(s) by using the mouse. It also allows you to assign mount points.

Disk Druid uses the following rules when assigning partitions to device names:

The 4 primary partitions are assigned unique device names of /dev/hda1, /dev/hda2, /dev/hda3 and

/dev/hda4

respectively.

If one of the primary partitions is used for an extended partition then the logical partitions within this ex- tended partition are assigned device names sequentially upwards from /dev/hda5. For example the first logical partition will always be assigned /dev/hda5, the second /dev/hda6 and so on

Device names are allocated to each

partition. Primary partition are assigned

/dev/*xxy*[1-4].

Logical partitions are assigned sequentially upwards from /dev/*xxy*5. /dev/*xxyN*

*xx*: Indicates what type of device, hd (IDE), sd (SCSI)

*y*: Indicates which disk, a (the first disk), b (the second disk)

*N* : The actual partition number

/dev/hda5: the first logical partition on 1st IDE drive.

/dev/sdb7: the 3rd logical partition on second SCSI drive.

4) What is MBR?What are the content of a MBR?

Master Boot Record:

- Partition table stores info on how the partitons are laid out.

- Boot loader stores info on where to boot from

The MBR is comprised of a small section of operating system independent code, a disk signature, the partition table and an MBR signature. The disk signature is a unique four byte identifier for the hard drive, that is to say it should be unique for each drive attached to a system. It is used for purposes such as identifying the boot volume, and associating partitions and volumes with a specific drive. The MBR signature, sometimes referred to as the magic number, is set to value 0xAA55, which simply identifies it as a valid MBR. The partition table informs of the start position and length of each partition on the hard disk. During system start up the MBR code is executed first, and is responsible for parsing the partition table and identifying which partition is marked as active. The active partition is identified control is passed to that partitions boot sector, sometimes referred to as the volume boot record (VBR)

5) What is Disk Druid? What is a different options with DD?

**Disk Druid** is an interactive program for editing **disk** partitions. Users run it only within the Fedora installation system

Disk Druid provide following options:

**New**

Select this option to add a partition or LVM physical volume to the disk. In the Add partition dialog, choose a mount point and a partition type

**Fixed size**

Use a fixed size as close to your entry as possible.

**Fill all space up to**

Grow the partition to a maximum size of your choice.

**Fill to maximum allowable size**

Grow the partition until it fills the remainder of the selected disks.

Select the **Encrypt partition** option to encrypt all information on the disk partition

**Edit**

Select this option to edit an existing partition, LVM volume group, or an LVM physical volume that is not yet part of a volume group.

**Delete**

Select this option to erase an existing partition or LVM physical volume. To delete an LVM physical volume, first delete any volume groups of which that physical volume is a member

**Reset**

Select this option to force **Disk Druid** to abandon all changes made to disk partitions.

**RAID**

Select this option to set up software RAID on your Fedora system

**Create a software RAID partition**

Choose this option to add a partition for software RAID. This option is the only choice available if your disk contains no software RAID partitions.

6) What is a general approach of assigning Device Name for different partition? Explain

The device names allocated to the individual partitions are deciphered as follows:

Dev-

This directory contains all the device files. All possible devices reside under /dev/.

*xx :*These two characters indicate what type of device the partition is on.

For example

hd:indicatesan IDE disk, sd would indicate a SCSI device.

*y :*This indicates which device the partition is on.

For example

hda: would be the first IDE disk.

*N:*This denotes the partition.

For example

/dev/sdb7 would be the third logical partition on thesecond SCSI drive

7) Explain the File System Mounting in Linux with an example

**Mounting:**

Maps partitions onto reference points in the file systems.

Ex:

Mount/dev/hda8/usr/local

The filesystem on /dev/hda8 can now be accessed through the usr/local mount point.

Usually, the *mount* command can detect the type of filesystem automatically**.**That is, we don’t have to pass the *-t* option explicitly.

There are some cases in which the *mount* command cannot detect the filesystem type:

* The partition is corrupt or not formatted
* The required filesystem tools are not available — for example, an attempt to mount an *NTFS*partition with “read & write” access without installing the *ntfs-3g*package

**mounting is typically restricted to the**root**user for security reasons**

The root user can set the permission of mounting point directories. As a result, all users allowed to enter the directories can access the mounted filesystems

To mount a USB drive in Linux, first of all, we have to find out the name of the USB device we want to mount

After we plug in a USB device, the Linux system adds a new block device file into the /dev directory.Most modern Linux distributions will populate a /dev/disk/by-label directory by udev rules.

**To identify the partition on theUSB drive, we can go to /**dev/disk/by-label**to find the block device by checking the**label**of the partition.**

Say we plug in a 16GB USB stick that has a single partition, which is formatted in ext4 format with label “SanDisk\_16G”.

The *ls -l* output shows the block device file of our USB stick is */dev/sdd1.*

However, not all Linux distributions will populate the */dev/disk/by-label* directory. [CirrOS](https://launchpad.net/cirros), for instance, doesn’t populate the *by-label* directory by default.

**We can also identify the block device file of our USB device by using the [fdisk](http://man7.org/linux/man-pages/man8/fdisk.8.html)command with the -l option**

**we first create mount point**

root# mkdir /mnt/usb16G

Latr we can access the USB stick under the directory /mnt/usb16G.

8) What are the different installation mode provided in RedHat Linux? Explain

You can install Red Hat enterprise linux using

* GUI-based installations
* System or cloud image-based installations
* Advanced installations

**GUI-Based installation**

* **Install RHEL using an ISO image from the Customer Portal:** Install Red Hat Enterprise Linux by downloading the **DVD ISO** image file from the Customer Portal. Registration is performed after the installation completes. This installation method is supported by the GUI and Kickstart.
* **Register and install RHEL from the Content Delivery Network:** Register your system, attach subscriptions, and install Red Hat Enterprise Linux from the Content Delivery Network (CDN). This installation method is supported by the **Boot ISO** and **DVD ISO** image files; however, it is recommended that you use the **Boot ISO** image file as the installation source defaults to CDN for the Boot ISO image file

**System-Based installations**

* You can use system or cloud image-based installation methods only in virtual and cloud environments. To perform a system or cloud image-based installation, use Red Hat Image Builder

**Advanced-Based installations**

* **Perform an automated RHEL installation using Kickstart:** Install Red Hat Enterprise Linux using Kickstart.
* **Register and install RHEL from the Content Delivery Network:** Register and install Red Hat Enterprise Linux on all architectures from the Content Delivery Network (CDN). Registration is performed before the installation packages are downloaded and installed from CDN. This installation method is supported by the graphical user interface and Kickstart.
* **Perform a remote RHEL installation using VNC:** The RHEL installation program offers two VNC installation modes: Direct and Connect. Once a connection is established, the two modes do not differ. The mode you select depends on your environment. And **Install RHEL from the network using PXE**