Ques1. What are the features of the kernel?

A Kernel is the central component of an Operating System. It is responsible for managing all the processes, memory, files, etc. The Kernel functions at the lowest level of the Operating System. It acts as an interface (bridge) between the user-level application (software) and the hardware.
1. Resource Allocation: - to manage the computer's resources and allow other programs to run and use these resources.

2. Process Management: - allow the execution of the application.

3. Memory Management: - allow the process to access the memory which is required to run the process

4. Disk Management: - for creating, deleting, formatting partition, etc…

5. I/O Device Management: - maintains a list of available devices and provides I/O to physically access this device through some port or memory location.

6. Security or Protection management: -provide security from faults and from malicious behaviors.

Ques2. Differentiate between Linux and Unix? When should we go for Linux and when should we go for Windows?

Linux is an open-source multi-tasking, multi-user operating system.
Unix is multi-tasking, multi-user operating system but is not free to use and is not open source.

Linux	Unix
Linux is free to use.	Unix is a licensed OS.
Linux is used in wide varieties from desktop, servers, smartphones to mainframes.	Unix is mostly used on servers, workstations or PCs.
Linux Supported File Systems Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, FAT32, NTFS.	Unix Supported File Systems s, gpfs, hfs, hfs+, ufs, xfs, zfs.
Bash (Bourne Again SHell) is default shell for Linux.	Bourne Shell is default shell for Unix.

Ques3. How we can say that Linux is Better than Windows?

1. Open Source Nature

2. Secure

When you have Windows installed, you need to download/purchase an Antivirus program to keep your computer safe from hackers and malware. However, Linux does not require the use of such Anti-Virus programs.

3. Customization

One major *advantage of using Linux instead of Windows* is customization. If you like tweaking your system's looks, Linux is just perfect for you.

4. Free to Use

5. Stability and Reliability

In Linux, you can modify a system or program configuration file and effect the changes without necessarily rebooting the server, which is not the case with Windows.

6. Flexibility

Linux is so powerful and flexible. You can tune it to meet your server needs: it allows you to do whatever you want (if possible). You can install a GUI (graphical user interface) or simply operate you're operating your server via a terminal only.

Ques4. What is the process of Boot up in detail?

Bootup Process

Booting happens when you start the computer. This happens when we turned ON the power or the computer restarts.it requires that the boot device loads the operating system into the main memory.

BIOS - Basic Input Output System.

Performing system integrity checks mean it will check the device whatever is connected to the system is properly connected or not.

Its searches, loads, and executes the boot loader program.

Once the boot loader program is detected and loaded into memory, BIOS gives control to it.

MBR - Master Boot Record

Located at /dev/sda. It is 512 bytes in size.

It will load the memory.

GRUB - Grand Unified Bootloader

If you have multiple kernels imaged installed on your system you can choose which one to be executed.

Grub displays a splash screen that waits for a few seconds if you don't enter anything, it loads the default kernel image as specified in the grub config file.
Located in /boot/grub/grub.config

Kernel -

It mounts the root file system as specified in the grub .config file.
Once the kernel starts the operation first thing it does is execute sbin/init process.

Init -

Located at the /etc/initab file to decide the Linux run level.
0-shutdown
1-single user mode
2-multiuser
3-full multiuser
4-unused
5-X11
6-Reboot

Run Level Program -

Depending on your init level setting the system will execute the program from dir.

Ques5. Purpose of '..' in cd command.

cd command in Linux known as change directory command. It is used to change the current working directory.
cd .. command is used to move to the parent directory of the current directory, or the directory one level up from the current directory. ".." represents the parent directory.
Ques6. What is ls,rm,mkdir,rmdir,,cat?
ls - This command 'lists' the contents of your present working directory.
rmdir - Remove an empty directory.
mkdir - Make a directory.
cat-cat command allows us to create single or multiple files, view content of a file, concatenate files and redirect output in terminal or files.

Ques7. How to create a file with space in the name?
Eg - hello world.txt.

>> touch 'hello world.txt'

Ques8. When to use the mv command and how to rename the file?

We use mv command to move files and directories from one directory to another or to rename a file or directory.
For move - mv [Option] source destination
mv kirti /Downloads

Ques9. By which command we can get the one-line description for the particular command?

whatis command

Ques10. Where is unit file are located?

Unit files are stored in the /usr/lib/systemd directoryand its subdirectories, while the /etc/systemd/ directory and its subdirectories contain symbolic links to the unit files necessary to the local configuration of this host.To explore this, make /etc/systemd the PWD and list its contents. Then make /etc/systemd/system the PWD and list its contents, and list the contents of at least a couple of the current PWD's subdirectories.

Day 2

Ques1. What are an absolute path and relative path?

An absolute path always contains the root element and the complete directory list required to locate the file. For example, /home/knoldus is an absolute path. All of the information needed to locate the file is contained in the path string.

A relative path needs to be combined with another path in order to access a file. For example, joe/foo is a relative path. Without more information, a program cannot reliably locate the joe/foo directory in the file system.

Ques2. What are hard links?

Hard Link:
A hard link acts as a copy (mirrored) of the selected file. It accesses the data available in the original file.
If the earlier selected file is deleted, the hard link to the file will still contain the data of that file.
Soft Link:
A soft link (also known as a Symbolic link) acts as a pointer or a reference to the file name. It does not access the data available in the original file. If the earlier file is deleted, the soft link will be pointing to a file that does not exist anymore.

Ques3. After ll command what is the arrow indicates to and what it is pointing to?

List the names of the files in the current directory along with the permissions, date, time, and size
List the names of the files in the *directory* along with the permissions, date, time, and size.

Ques4. What does srv contain?

The /srv/ directory contains site-specific data served by your system running Red Hat Enterprise Linux. This directory gives users the location of data files for a particular service, such as FTP, WWW, or CVS. Data that only pertains to a specific user should go in the /home/ directory.

Ques5. What does the mnt directory contain?

The /mnt/ directory is reserved for temporarily mounted file systems, such as NFS file system mounts. For all removable media, use the /media/ directory.

Ques6. How does cgroup be different from namespace?

cgroups limits the resources which a process or set of processes can use these resources could be CPU, Memory, Network I/O, or access to filesystem while namespace restricts the visibility of the group of processes to the rest of the system.

Ques7. In vim how can we search inside the file?

esc / search word

Ques8. Difference between wq and x?

The:wq command is used in Vim to write and quit.
The :x just exits if the buffer hasn't changed.

Ques9. What are hidden files?

A hidden file is a file that has the hidden attribute turned on so that it is not visible to users when exploring or listing files. Hidden files are used for the storage of user preferences or for the preservation of the state of utilities. They are created frequently by various system or application utilities. Hidden files are helpful in preventing the accidental deletion of important data.