1. **Briefly, what does the process of installing an operating system such as Linux involve?**

**A:** Installing Linux is the process of copying operating system files from an installation medium ( e.g., DVD, USB flash drive) or the network to hard disk(s) on a system and setting up configuration files so Linux runs properly on the hardware.

2. **What is an installer? What is the name of the Fedora/RHEL installer?**

**A:** The installer is a tool that automates the process of installing Linux and makes the installation process easier and friendlier. The name of Fedora/RHEL installer is Anaconda.

3. **Would you set up a GUI on a server system? Why or why not?**

**A:** No because server systems can save resources by not including a GUI.

4. **A system boots from the hard disk. To install Linux, you need it to boot from a DVD. How can you make the system boot from a DVD?**

**A:** The BIOS determines the order in which the system tries to boot from each device. Hence, as the system boots, go into the BIOS setup and change the order of the devices the system tries to boot from. Revise the order so that the system first tries to boot from the DVD and then tries to boot from the hard disk.

5. **What is free space on a hard disk? What is a filesystem?**

**A:** The area of a partitioned dis that is not occupied by partitions is called free space.

A filesystem is a way to organize and save data for a program after it is shut down. It needs to be written to the partition.

6. **What is an ISO image? How do you burn an ISO image to a DVD?**

**A:** An installation (ISO) image is an exact image of what needs to be on the DVD. When you burn an ISO image to a DVD, you must use a special command that is part of most DVD-writing software; you cannot copy an ISO image to a DVD the same way you copy other files. The special command has a label similar to Record CD from CD Image or Burn CD Image. Refer to the instructions for the software you are using for information on how to burn an ISO image file to a CD/DVD.

### Advanced Exercises

**7. Give two reasons why RAID cannot replace backups.**

**A:** Firstly, if the system experiences a catastrophic failure, RAID is useless. Earthquake, fire, theft, and other disasters might leave the entire system inaccessible (if the hard disks are destroyed or missing). Secondly, RAID also does not take care of the simple case of replacing a file when a user deletes it by accident.

**8. What are RAM disks? How are they used during installation?**

**A:** A RAM disk is random access (system) memory that uses in place of the hard disk used for a normal boot operation. The installer copies tools required for the installation or to bring up a system from a live CD or an install DVD to the RAM disks. The use of RAM disks allows the installation process to run through the specification and design phases without writing to the hard disk and enables you to opt out of the installation at any point before the last step of the installation. The RAM disks also allow a live session to leave the hard disk untouched.

**9. What is SHA2? How does it work to ensure that an ISO image file you download is correct?**

**A:** SHA2 is Secure Hash Algorithm 2. The third member of the SHA family, SHA2 is a set of four cryptographic hash functions named SHA-224, SHA-256, SHA-384, SHA-512 with digests that are 224, 256, 384, and 512 bits, respectively.

The CHECKSUM file contains the SHA2 sums for each of the available installation (ISO) image files. When you process a file using the sha256sum utility, sha256sum generates a number based on the file. If that number matches the corresponding number in the CHECKSUM file, the downloaded file is correct. With the –c option and the name of the CHECKSUM file, sha256sum checks each of the files listed in the CHECKSUM file.

**10. If the SHA256 checksums of an ISO don't match what could some reasons why?**

A: If the two codes don't match then it means that the ISO file has changed in some way, most likely due to being corrupted. Because sha256sum generates a number based on the file and ISO file also come from the file, these two codes should be the same.