1. What are system resources?
2. How do multitasking, multithreading, and multiprocessing work?
3. What is a memory leak?
4. What happens during the boot process?
5. When do users interact with the operating system?
6. How do GUIs differ from command line interfaces?
7. Which operating systems are typically used on personal computers, on servers, and on handheld devices?
8. Do operating systems put limits on the names that can be used for files?
9. What is a file specification or path?
10. What is a native file format?
11. Are there guidelines for managing files so that they are easy to locate and back up?
12. What happens behind the scenes when a computer stores a file?
13. What is the best backup device?
14. How do synchronization and backup software differ?
15. How do restore points, bare-metal restore, disk imaging, virtual machines, boot disks, and recovery disks relate to backup?
16. Is it possible to back up data on handheld devices?

1. System resources are the parts of a computer that have been installed into it and are available to be used by the operating system as well as other applications. They are a type and the capacity of disk, type and speed of RAM memory, central processor unit and its frequency, graphics and many others.

2. Multitasking, multithreading, multiprocessing are the performance-enhancing technologies that computer can use to work fast. They are all are connected with CPU. The word “multi” means that something is processed not on a chain but in the same time. Multiprocessing sometimes executing multiple processes (programs) at the same time. The main idea of multiprogramming is to maximize the use of CPU time.

3. Memory leak is that: whenever you allocate memory and don't deallocate it or there are not enough system resources, obviously RAM memory, to do something. The allocated memory will remain and the space where it was located won't be used by your program ever again. So that memory leak is like losing of data mostly by app's bugs.

4. When the system boots a small bootstrap program is running. It stored in ROM and supplies the instructions needed to load the OS’s cores into memory.

5. Operating system is the controller of the hardware and the application environment. Any tasks user doing with applications or with system software

addresses to computer's OS... Using Operating system user can control all activities happening in the computer. Usually common user interacts with OS every minute he doing something on computer. Another question is how does he do this?

6. User communicates with the operating system by GUI or by command line. Command line is like the computer-user translator. That means when user types some combinations of code into command line computer will execute defined combination of commands. CUI is the graphical user interface is a form of user interface that allows users to interact with apps and electronic devices through graphical icons and audio indicator. So the GUI's elements have a certain operation set and they are easy to use because unlike using command line you don't need to know which command does such operation.

7. What about types of OSes one operating system might be better suited to some computing tasks than others. Operating systems are categorized using one or more terms. The basic OSes are multiuser, single-user, network and desktop OS. A single-user operating system expects to deal with one set of input devices – those that can be controlled by only one user. A multiuser operating system allows a single computer to deal with simultaneous input, output, and processing requests from many users. A network operating system provides communications and routing services that allow computers to share data, programs, and peripheral devices. A desktop operating system is one that is designed for a personal computer. It is designed to accommodate a single user, but might also provide network capability.

8. Different OS have different limits. It is name length limit or filename extension length limit. Some OS have symbols blacklist. Linux, Windows, MacOS. They are all differ from each other.

9. Path is a file's location is defined by a file specification which includes the storage device, folder(s), file name and extension. Path is used to systemize location folders and files in your computer. It allows modern technique to open, to change files and etc. systematically. The path is like a direction, direction to information contained in the file.

10. The native file format is a file extension which is a file identifier. Such file extensions work like tickets that admit people to different places, moves, or concerts. So if file has right extension for a particular application program, you'll see it in the list of files you can open with that software. Native file format is file format concerned a program in which program it was made (.doc for MSWord, .pdf for AdobeAcrobat etc.).

11. Because of universality of our computers it's necessary to follow some tips managing files. They are: to give your files and folders descriptive names, and to

avoid using cryptic abbreviations; to separate files into folders based on subject matter; to not store data files in the folders that hold your software or to not mix data and program files; when renaming a file, you should keep the original file extension so that you can easily open it with the correct application software.

12. Before a computer can store a file on a disk, CD, or DVD, the storage medium must be formatted. The formatting process creates the equivalent of electronic storage bins by dividing a disk into tracks and then further dividing each *track* into sectors. To speed up the process of storing and retrieving data, a disk drive usually works with a group of sectors called a cluster or a "block". The number of sectors that form a cluster varies, depending on the capacity of the disk and the way the operating system works with files. A file system's primary task is to maintain a list of clusters and keep track of which are empty and which hold data. This information is stored in a special index file. If your computer uses the FAT32 file system, for example, this index file is called the File Allocation Table (FAT). If your computer uses NTFS, it is called the Master File Table (MFT). When you save a file, your PC's operating system looks at the index file to see which clusters are empty. It selects one of these empty clusters, records the file data there, and then revises the index file to include the new file name and its location.

13. Local network server is the best one, I think. Because of its speed and relation convenience.

14. First synchronize data between A and B in two-way: if you change something in A, it is changes in B and. The second is synchronize data between A and B in one-way: if you change something in A, it is changes in B, but if you change something in B, A will remain without change.

15. Summarilly… Restore points – snapshot of OS settings. Bare-metal restore – copy disk in disk image byte by byte. Disk imaging – byte by byte disk copy. Virtual machines – program that emulates hardware, you can use restore yore bare-metal backup into VM, if you don't want to erase your current hard drive.

16. Of course it is possible. You always can use cloud services like Google disk and Google photos, ICloud, MI Cloud and many others. Nowadays the question of backing up and synchronization is very actual and relevant. A lot of users are suffering from viruses and from losing data & information. So each supplier of such devices takes care of their customers and provides a bad alignment of events, they are improving and creating new back up technologies. F.e, all android devices have access to Google's backing up software. All devices designed by Apple have their own synch and backing up services… However, "internet" backing up is not free and for such services it's normally to pay, sometimes a lot, and that's unsurprisingly.