CS 314 Operating Systems, Spring 2024
Quiz #9 on April 2, 2024

List of the Possible Questions

#1: What types of file accesses can "sequential access files" and "random access files"? Fill "yes (possible)" or "no (impossible)" for each blank in the following table.

	Sequential Access Files	Random Access Files
Sequential Read		
Random Read		

#2: What type of file allocation method does MS FAT file systems use (contiguous, linked-list non-contiguous, or indexed non-contiguous)? Justify your solution.

#3: What type of file allocation method does UNIX i-node file systems use (contiguous, linked-list non-contiguous, or indexed non-contiguous)? Justify your solution.

#4: What type of file allocation method does MS FAT file systems use (contiguous, linked-list non-contiguous, or indexed non-contiguous)? Justify your solution.

#5: What are the primary motivations (mention two) of using "clusters" in FAT-16 file system?

#6: Find the effective drive capacity (the amount of files that can actually be stored in a hard drive) in the following case. <u>You can use a calculator</u>. <u>Show your work</u>.

- A FAT-16 formatted 8GB hard disk (1GB = 1,073,741,824 = 2^{30} bytes).
- Sector size is 256 bytes.
- Average file size = 17KB (1KB = 1024 = 2^{10} bytes).

#7: What is the primary advantage of UNIX i-node file system (compared to MS FAT-16)?

#8: What are the primary advantage of MS FAT-16 file system (compared to UNIX i-node)?

#9: How many copies of FAT table are created (and maintained) by FAT-16 file system? Explain what that particular number of copies are create.

#10: What does "MBR" stand for? What does MBR contain?

#11: Why is physically damaging "the MBR sector (sector 0, track0, surface 0, and disc 0)" of a disk fatal?

#12: Why are "boot sector viruses" are fatal to systems?

#13: What is "partition table" of a disk drive? What information does the partition table contain? What will happen if the partition table fails (corrupt)?

#14: What is "the boot block" in a disk partition? What information does the boot block contain?

#15: If your PC is stuck when you see the following screen, where did the problem happen (select one from the following options)?

When your PC is using:

    (a) BIOS ROM

    (b) The boot-strap loader in MBR

    (c) The partition table in MBR

    (d) IPL (the OS loader)

    (e) Somewhere not in the above

#15: If your PC is stuck when you see the following screen, where did the problem happen (select one from the following options)?
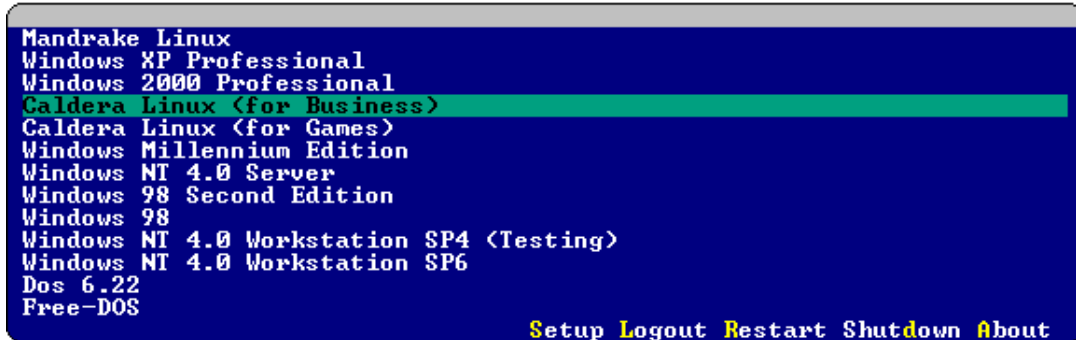
When your PC is using:

    (a) BIOS ROM

    (b) The boot-strap loader in MBR

    (c) The partition table in MBR

    (d) IPL (the OS loader)

    (e) The target OS

    (f) Somewhere not in the above

#16: The following is a snapshot of "multi-boot" disk utility tool.   Where should "multi-boot tool" be installed?

  (a) BIOS ROM
  (b) The boot-strap loader in MBR
  (c) The partition table in MBR
  (d) IPL (the OS loader)
  (e) The target OS
  (f) Somewhere not in the above

#17: If your PC is stuck when you see the following screen, where did the problem happen (select one from the following options)?

  When your PC is using:

        (a) BIOS ROM

        (b) The boot-strap loader in MBR

        (c) The partition table in MBR

        (d) IPL (the OS loader)

        (e) The target OS

        (f) Somewhere not in the above