Homework #7

Q1 – Explain the 2 advantages and disadvantages between RAID 4 and RAID 6.

	Advantages	Disadvantages
RAID 4	Has good random read performance	Only 1 Disk failure maximum in contrast to RAID 6's 2 disk failures
RAID 6	Allows a maximum of 2 drive failures before any data is loss	Is more expensive than RAID 4 because you'd have to have more Disk in your array [no-duh]; in addition, has a slower write and rebuild time

Q2 - What are different type of secondary storages available for operating systems.

Primary storage is RAM, so the common secondary storages available for operating systems are both HDD and SSDs. With that said HDD are being phased out as boot drives with preference using SSD; however, if one needs large amount of storage the HDD would still be your best bet if speed isn't a demand. Uncommon today tape drives would be another alternative to secondary storage for archival use.

Q3 – How booting can be done from external devices. Write down the steps in few lines.

1. Go into BIOS/UEFI settings – SPAM the OEM specified key (F12, <esc>, <delete>)
2. Change boot order OR Select your boot option

OR

1. Change the boot loader
2. Kernel loaded into memory and start
3. Kernel initialize the hardware
4. Have the root system mount the drive

Q4- How parity and mirroring help in data integrity and data reliability.

NOTE RAID IS NOT A BACK UP! With that said parity and mirroring help in data integrity and data reliability for when any part of data is corrupted or random bit shifts/errors happen the other disk can "repair" the corrupted section of data.

Q5- Show the head movement for the following queue when disk head is at 44. Use algorithm c-Scan and SSTF (Queue – 54,41,99,37,23,77,91,103,22,29,82,61)

A5.1 – c-Scan: 44 ➞ 54 ➞ 61 ➞ 77 ➞ 82 ➞ 91 ➞ 99 ➞ 103 ➞ 22 ➞ 23 ➞ 29 ➞ 37 ➞ 41

A5.2 – SSTF (Shortest Seek Time First): 44 ➞ 41 ➞ 37 ➞ 29 ➞ 23 ➞ 22 ➞ 54 ➞ 61 ➞ 77 ➞ 82 ➞ 91 ➞ 99 ➞ 103

Q6 – T/F – RAID 1+0 is first mirroring then striping: TRUE

Q7 – T/F – Access to flash drive is faster than HDD: TRUE

Q8 – T/F – If seek time is 10 ms and random access time is 15ms then latency is 25 ms: TRUE

Q9 – T/F – SAN disk consists of several storage arrays: TRUE

Q10- T/F – Garbage collection is a way to find out error detection: TRUE