Operating Systems, Chapter 10 to Chapter 15-Sample

1. Please write down the full names of the following terms. Note that no explanation is required.
   (1) NFS_____
   (2)FAT (in file system)_____
   (3)RAID _____
   (4)ACL (in file protection) _____
   (5)FCB_____
   (6)SAN_____
   (7)ECC (in disk formatting)_____
   (8)DMA_____
   (9)DOS (in security)_____
   (10)NAS_____
2. 解釋名詞:
   (1)(file system)mount point_____
   (2)consistency semantics_____
   (3)consistency checker_____
   (4)NAS_____
   (5)synchronous I/O_____
   (6)spool_____
   (7)zombie systems (in security): _____
   (8)one-time password_____
   (9)biometric_____
   (10)multifactor authentication_____
3. (1)Draw the schematic view of the NFS architecture.
   (2) Show an example of FAT, for a file, named goodluck, consisting of disk blocks 200, 600 and 300. It starts from block 200, follows by 300 and 600. (Note that you must draw a schematic for directory entry and FAT.)
   (3) Show an example of a bit vector.
   (4) Suppose the possibility that the mean time to failure to a single disk is 200,000 hours. Then the mean time to failure of some disk in an array of 100 disks will be?
4. (1)Please show the information that a file control block would have. Please list at least 4 items.
   (2) What is "inode' (in Unix)
   (3) Describe the operations of the ***open()*** system call.
   (4)Suppose that you see a RAID configuration RAID of 5 disks. You are told that the normal operation of the RAID needs only 4 disks. What is the extra disk for? Can you describe its operation?

5. (1)Consider, for example, a disk queue with requests for I/O to blocks on cylinders 96, 186, 36, 126, 16, 168, 68, 69 in this order. Suppose that the cylinders are numbered from 0 to 199. If SCAN algorithm is used for disk scheduling, how many cylinders for a total disk head movement?
   (2)What is the major advantage and disadvantage of SCAN? (Hint: In the SCAN algorithm, the disk arm starts at one end of the disk and moves toward the other end, servicing requests as it reaches each cylinder, until it gets to the other end of the disk.)
6. (1)Suppose that there are 3 objects F_1, F_2 and F_3. There are three domains: D_1, D_2 and D_3. D_1 can execute F_1, and F_3. D_2 can execute F_1 and F_3. D_2 can also read F_2. D_3 can execute F_1. Draw the access matrix for these domains and objects.
   (2)What is the access list of F_2?
   (3)What is the capability of D_2?
7. (1)What is a firewall?
   (2)What is “DMZ” in a firewall?