# OS ch11,12,13

1. A layered file system typically consists of multiple layers: A) logical file system, B) file-organization module, C) basic file system, D) I/O control layer. Which layer is strongly related to disk allocation strategies?

2. There are some structures in disk for maintaining information, such as A) boot control block, B) volume control block, C) FCB, D) directory structure
   (a) Which one maintains file names and the associated inode?
   (b) Which one is needed per file?

3. Which of following directory structures allow the sharing of subdirectories and files. (a) Two-level directory (b) tree-structured directory (c) acyclic-graph directory (d) general-graph directory

4. Consider disk allocation methods. (a) What problem in the linked allocation can be solved by FAT method? (b) What problem in the original indexed allocation can be solved by using multi-level indexed allocation?
   A. File size cannot grow   B. limited file size   C. multiple disk accesses for a single block

5. Suppose that the operating system uses two internal tables to keep track of open files. Process A has two files open and process B has three files open. Two files are shared between the two processes. How many entries are in the per-process table of process A, the per-process table of process B, and the system-wide tables, respectively?

6. Given a file named "test1", which has five data blocks with the block numbers 23, 5, 14, 31, 25 (in order). Please show the directory entry and FAT table entries related to "test1".

7. Given two file systems, rooted from / and E, respectively, as in the figure below. Assume we use directory B as a mount point to attach the file system rooted from E. Please show absolute paths respectively for directories G and D after *mounting*.
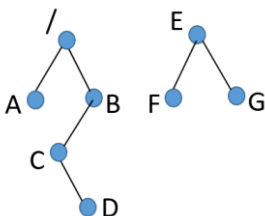
8. How many disk accesses are necessary for direct access to file offset : byte 20680 using linked allocation? Assuming that each disk block is 4 KB in size. (Note: *not include directory entry access*)

9. Given block size 1KB, assume the entry of index block is 4bytes. What is the maximum file size that can be supported if single-level indexed allocation is used? (Note. 1KB=1024 bytes. Please gives your answer in bytes)

10. Consider a disk queue holding requests to following cylinders in the listed order:

    88, 116, 22, 3, 11, 75, 185, 100, 87.

    For disk scheduling algorithm C-LOOK , what is the order that the requests are serviced, assuming that the disk head just finished the request at cylinder **87** and is serving the request at cylinder **88**?

11. Which of following statements are true?
    (a) Data striping provide reliability for RAID system
    (b) RAID level 0 provides no redundancy.
    (c) RAID level 3 allows multiple small-read operations to be processed simultaneously.
    (d) RAID1+0 provides more reliability than RAID0+1.