**Dead lock**

1. Define deadlock. Explain necessary conditions for handling deadlocks. (\*\*\*\*\*)
2. Explain deadlock prevention.(\*\*\*\*\*)
3. Explain deadlock avoidance.
4. Explain deadlock detection.
5. Explain recovery from deadlock.

**Memory management**

1. Explain Swapping in memory management.(\*\*\*\*\*)
2. Explain Contiguous memory allocation (\*\*\*\*\*)
3. Explain non-contiguous memory allocation (paging, segmentation) (\*\*\*\*\*)
4. Explain the structure of the page table mapping in memory management.(\*\*\*\*\*)

**Virtual-Memory management**

1. Explain demand paging.(\*\*\*\*\*)
2. Explain page replacement algorithms with example.(\*\*\*\*\*)
3. Explain allocation of frames.
4. Explain Thrashing.(\*\*\*\*\*\*)

**File System**

1. Discuss in detail various file access methods.(\*\*\*\*\*)
2. Explain various directory structures.(\*\*\*\*\*)
3. Explain file sharing and File mounting.

**Implementing file systems**

1. Explain following (\*\*\*\*\*)
2. File implementation methods
3. Directory implementation methods
4. Discuss various file allocation strategies (methods).(\*\*\*\*\*)
5. Explain various methods to implement Free space management.

**Mass-Storage Structure**

1. How to organize the mass storage? Explain in brief. (\*\*\*\*\*)
2. Explain disc-scheduling algorithms with example.(\*\*\*\*\*)

Note: Entire concepts of dead lock are important for external exam.