**OS – Module 3 – Important Questions**

1) Differentiate logical address & physical address
   (Address **generated by CPU during program execution is logical address, address of physical memory location is physical address**)

2) List various address-binding schemes
   (Compile-time**, load-time & execution-time. In compile-time and load-time binding, both logical address and physical address are identical. In execution-time binding, logical address has to be translated or mapped to physical address with the help of a relocation register**)

3) Explain Contiguous memory Allocation ( Fixed Partition Scheme , Variable Partition Scheme)
   a. **Fixed Partition Scheme – Multiprogramming with Fixed Number of Tasks**
   b. **Variable Partition Scheme – Multiprogramming with Variable Number of Tasks**

4) Explain various memory allocation strategies ( dynamic memory allocation strategies ) -
   (First**-fit, Best-fit & Worst-fit, the approach of selecting an appropriate free hole or free partition for the process**)

5) Explain Fragmentation issues
   (**Internal Fragmentation**, an issue that may occur with contiguous memory allocation using fixed partition scheme. In fixed partition scheme, each process will get an individual partition. If the size of the process is less than the size of the partition, the remaining space within the partition will become an unusable fragment.

   **External Fragmentation**, an issue that may occur with contiguous memory allocation using variable partition scheme. It is a situation in which a process is not able to get memory allocation because the holes that are available in the system are too small to fit the process.)

6) List solutions for fragmentation issues :
   (Solution **for Internal Fragmentation - Use variable partition scheme**
   **Solution for External Fragmentation - Use Compaction or Use Non-Contiguous memory allocation such as Paging or Segmentation**)

**7)** Explain **Paging**
   a. Concept of Paging
   b. Paging Hardware
   c. Example for Paging
   d. Advantages & Disadvantages of Paging

8) Explain **Segmentation**
   a. Concept of Segmentation
   b. Segmentation Hardware
   c. Example for Segmentation
   d. Advantage of Segmentation over Paging

**9) Virtual Memory**
   a. **Concept of Virtual Memory**
   b. **Explain Demand Paging ( Paging & swapping )**
   c. **Explain Page Fault**
   d. **Explain Page Replacement**
   e. **Page Replacement Algorithm ( FIFO , LRU , Optimal , MFU , LFU )**
   f. **Calculation of page faults**

10) Explain **Thrashing**
   (Processes are engaged more on paging activity than execution activity. Degree of multiprogramming increases , but CPU is not used efficiently)