**Student will attempt randomly given 4 questions**

**Each question carries 2.5 marks.**

**Set1**

1. How many types of addresses are there in Computer and what is the difference between physical and logical address space?
2. Demonstrate the concept of virtual memory along with the need of demand paging?
3. Highlight the concept of page-fault? When does page-fault occur? Also, tell the action taken by the operating system when page fault occur?
4. Consider the page reference string of size 12: 1, 2, 3, 4, 5, 1, 3, 1, 6, 3, 2, 3 with frame size 4. Calculate the hit ratio using FIFO.

**Set-2**

1. Evaluating the maximum number of pages needed, if a system supports 16 bit address line and 1K page size.
2. Explain the major device management functions that can be performed by the operating system?
3. Elaborate the term Directory Structure? Also describe the logical structure of Directory?
4. Consider the page reference string of size 12: 1, 2, 3, 4, 5, 1, 3, 1, 6, 3, 2, 3 with frame size 4. Calculate the hit ratio using LRU.

**Set-3**

1. Is there any difference between SSTF and SCAN scheduling? If yes, then justify.
2. Compare Internal and External fragmentation.
3. Consider a logical space of 64 pages of 1024 words each mapped with a physical memory of 32 frames.

* How many bits are there in the logical address?
* How many bits are there in physical address?

1. Elaborate the concept of Paging with Segmentation?

**Set-4**

1. Why do we need Paging in Operating System? Explain its advantages and disadvantages?
2. Consider a disk with 200 tracks and the queue has random requests from different processes in the order: 55, 58, 39, 18, 90, 160, 150, 38, 184

Initially arm is at 100. Find the Average Seek length using FIFO, SSTF.

1. Analyse the RAID Structure and Elaborate on various RAID Levels?
2. Highlight various Page Replacement Algorithms in detail with suitable example?