Operating Systems Question Paper

Year: Second Year

Topics: Paging, Scheduling

Section A: Paging (5 Marks)

Instructions: Choose the most appropriate answer from the options provided.

1. Which of the following is a benefit of paging?
   (a) Reduced memory fragmentation
   (b) Faster access to data
   (c) Improved security
   (d) None of the above

2. What is the purpose of a page table?
   (a) To map physical memory addresses to virtual memory addresses
   (b) To store the contents of a page
   (c) To manage page faults
   (d) To allocate memory to processes

3. Which page replacement algorithm replaces the least recently used page?
   (a) LRU
   (b) FIFO
   (c) OPT

(d) Random

4. What is the difference between a soft page fault and a hard page fault?

(a) A soft page fault is caused by a missing page in memory, while a hard page fault is caused by a non-existent page

(b) A hard page fault is caused by a missing page in memory, while a soft page fault is caused by a non-existent page

(c) There is no difference between a soft page fault and a hard page fault

(d) A soft page fault is caused by a page that is currently being written to disk, while a hard page fault is caused by a page that has been removed from disk

5. Which of the following is NOT a page size?

(a) 4KB

(b) 8KB

(c) 16KB

(d) 64KB

Section B: Scheduling (5 Marks)

Instructions: Answer the following questions in detail.

1. Describe the following CPU scheduling algorithms:

- First-Come First-Served (FCFS)

- Shortest Job First (SJF)

- Round Robin

2. Explain the concept of thread scheduling and its benefits.

3. Discuss the advantages and disadvantages of priority scheduling.

4. Describe the role of a dispatcher in an operating system.

5. Explain the difference between preemptive and non-preemptive scheduling.