PART B QUESTION BANK

1. A company is looking to upgrade its current computer system to enhance performance and scalability. Using your knowledge of computer system architecture (including CPU, memory, and input/output devices), recommend an architecture that would meet these goals. Justify your recommendation based on the system's requirements and expected workload.

2. Compare and Contrast Multilevel Queue scheduling and Multilevel Feedback Queue Scheduling.

3. A business is experiencing performance bottlenecks due to inefficient CPU utilization and memory management. Using your knowledge of computer system architecture, propose a solution to optimize the CPU, memory, and input/output devices. Justify how your proposed solution would address the bottlenecks and improve overall system efficiency.

4. Two processes in a distributed application need to exchange large volumes of data frequently. Apply your understanding of Inter Process Communication (IPC) mechanisms to select the most efficient method for this task. Justify your choice based on factors such as speed, data size, and the independence of the processes.

5. Your team is developing a multithreaded application that involves multiple threads accessing and modifying shared resources. Apply your knowledge of threading issues to identify potential challenges such as race conditions, deadlocks, and thread contention. Recommend strategies to address these challenges and ensure correct and efficient execution.

6. Compare and contrast multiple processor scheduling and real time scheduling.

7. An organization is experiencing frequent system crashes and slow performance. Apply your knowledge of system programs to diagnose potential causes of these issues. Recommend specific diagnostic tools and procedures that can be used to identify and resolve the underlying problems.

8. A system is experiencing performance issues due to improper handling of process states. Apply your understanding of the process state diagram and operations on processes to identify the cause of the problem. Recommend how the operating system can optimize the transitions between process states to enhance system performance.