

Question Bank

- 6.1 What is mutual exclusion? Depict a scenario where mutual exclusion is required.
- 6.2 What is a dead-lock? List the necessary conditions for a deadlock to occur.
- 6.3 Bring out the difference between Deadlock avoidance and deadlock prevention scheme.
- 6.4 Explain why having multiple copies of a resource does not prevent deadlocks from happening.
- 6.5 Define the critical section problem and explain the necessary characteristics of a correct solution.
- 6.6 With the help of the model of resource management, explain the tasks and goals of the resource manager.
- 6.7 When does deadlock happen? How does Banker's algorithm avoid the deadlock condition.
- 6.8 Explain critical region and mutual exclusion with respect to produce consumer problem.
- 6.9 What are semaphores? What are binary semaphores?
- 6.10 When do we need semaphores with structures like a semaphore array? In which applications do we need to use structured semaphores?
- 6.11 Write the algorithms for wait() and signal() functions. Explain their usage in an example.
- 6.12 What is semaphore? Describe how semaphore can be used for block wake up synchronization between processes.
- 6.13 Explain reader/writers problem and protocol.
- 6.14 Suppose we have two printers connected to a system. For a print job we may allocate any of the two printers. We wish to use semaphores. Describe your design and explain how the scheme shall work. Give a brief sketch of the script that would control printer operation.
- 6.15 What is dining philosopher problem? Explain monitor solution to dining philosopher problem.
- 6.16 Suggest one method each to avoid "Hold and wait" and "Circular Wait" condition.

- 6.17 The Banker's algorithm is an example of _____ strategy for overcoming deadlocks.
- 6.18 What is a live lock? What are the conditions under which it occurs and what are the actions taken to overcome such a condition?
- 6.19 What is a thread control block? How is it different from the process control block? Mention some (two) of the parameters in TCB.