



N.B.(1) Question no 1 is compulsory

(2) Attempt any **three** questions out of remaining five questions

1. Solve any **four**
 - (i) Why page size is always power of 2? 05
 - (ii) Define C-SCAN disk scheduling. 05
 - (iii) Explain difference between signal processor and multi-processor system. 05
 - (iv) Explain different states of process. 05
 - (v) State characteristics of good process scheduler 05
 - (vi) Distinguish between CPU bound process and IO bound process? 05

2. (a) What is process control block? Explain its significance. 10
- (b) Explain solution to avoid deadlock in dining philosopher problem 10

3. (a) What is deadlock ? Explain necessary and sufficient conditions for deadlock to occur. 10
- What is the difference between Deadlock avoidance and prevention? 10
- (b) Discuss situations in which the most frequently used (MFU) page replacement algorithm generates fewer Page faults than the least recently used (LRU) page replacement algorithm. 10
- Also discuss under what circumstances the opposite holds.

4. (a) What is Operating System ? Explain different functions and objectives of operating system. 10
- (b) What is mutual exclusion? Explain wait() and signal(). 10
- Explain how mutual exclusion is achieved semaphore

5. (a) Explain resource allocation graph with example. 10
- (b) Explain various I/O buffering techniques. 10

6. (a) What are system calls in an operating system? Explain any five system calls. 10
- (b) Explain techniques of disk scheduling. 10