OPERATING SYSTEMS

Time : 3 Hours *Maximum Marks : 90*

(Compulsory Question)

1. a) Why is the operating system viewed as a resource allocator and control program?
   b) How does job scheduler differs from CPU scheduler?
   c) Define IPC. How do processes communicate using direct and indirect communication?

d) Explain the concept of swapping and thrashing in terms of memory management.

e) What is semaphore? Explain various types of semaphore.

f) Write short notes on file access and allocation methods.

UNIT-I

2. Explain operating system functions and characteristics. Discuss various types of operating systems with examples.

3. a) What is historic evolution of operating system? Explain.

b) Define system program. How it differs from system call? Explain various types of system calls provided by an operating system. Give examples for each of them.

Unit-II

4. Define process. Explain the concept of process state and process control block. Explain any two CPU scheduling techniques with examples.

5. What are the necessary conditions for a deadlock to occur? Explain the concept of deadlock detection and recovery.

Unit-III

6. Explain different memory management techniques with examples. Which memory management technique is supported by windows operating system?

7. Explain any four page replacement algorithms. Give examples.

Unit-IV

8. Explain any four techniques of disk scheduling with examples.

9. a) What is structured organization of directory system? Explain.

b) Explain the concept of file systems and directory systems. Discuss various directory and file protection mechanisms.