

TIT-501

196

No. of Printed page: 2

Paper ID and Roll No. to be filled in your Answer book										
Roll. No.										
B.Tech (2014-2015)										
Operating System										

*[Time: 3Hours]**Total Marks: 100***Note: Attempt all questions****Q:-1 Attempt any 4 questions****5X4=20**

- What are the three main purposes of Operating system?
- Describe the essential properties of the following types of Operating systems: Batch, Interactive and Time sharing.
- Differentiate between spooling and Buffering.
- "CPU scheduling forms the basis of multiprogramming system." Explain.
- Discuss the layered approach of Operating to system Design
- Compare and contrast acyclic graph directory and tree directory structure.

Q:-2 Attempt any 4 questions**5X4=20**

- What is process scheduling? Discuss the functions of short-term, medium-term and long-term schedulers.
- What two advantages do threads have over multiple processes? What major disadvantage do they have? Discuss threads in SOLARIS 2.
- Discuss any one method in detail how cooperating processes can communicate.
- Discuss Dining-Philosopher and Bounded Buffer problem of Process Synchronization. Explain how semaphores are used as a solution to these problems.

- e) What is cause of thrashing? How does system detect thrashing? What can system do to eliminate this problem?
- f) How do caches help improve performance? Why do systems not use more or larger caches if they are so useful? Discuss Direct Mapped cache

Q:-3 Attempt any 2 questions

10X2=20

- a) Why are paging and segmentation sometimes combined into one scheme? Support your answer with neat diagrams.
- b) Discuss Multiprogramming with Fixed number of Tasks and Multiprogramming with Variable number of Tasks. Given memory partition of 100k 500k, 200k, 300k, 600k(in order), how would first-fit and best-fit place processes of 212k, 417k, 112k and 426k (in order)? Which algorithm makes the most efficient use of memory??
- c) What is Demand Paging? What is the effective access time for a demand paged memory? Discuss the steps in handling page fault in Demand paging.

Q:-4 Attempt any 2 questions

10X2=20

- a) Discuss the architecture or structure of File Management System. What problem could occur if a system allowed a file system to be mounted simultaneously at more than one location?
- b) What are the various file access methods? Discuss sequential access method in detail. The records are in sorted state in a sequential file, in sorted data binary search is supposed to be most efficient. Can it be applied in sequential files?
- c) Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. Starting from the current position, what is total distance that disk arm moves to satisfy all the pending requests for SSTF Disk Scheduling Algorithm?

Q:-5. Write short notes on (Any Two):

10X2=20

- a) Process synchronization in LINUX
- b) Memory Management in WINDOWS XP.
- c) Disk mirroring or shadowing.
- d) Swap space Management.
- e) FIFO anomaly

(2)

TIT-501 // 400 // 2