(3 Hours)

[Total Marks : 100

Instructions: - 1) Question No 1 is compulsory; solve any 4 questions from remaining 6
question.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

1. a) What is mutual exclusion. Explain semaphore used for mutual exclusion. (10)
   b) Explain LINUX concurrency control method. (10)

2. a) Explain Operating system as an extended machine while explaining its seven functions. (10)
   b) Explain different types of disk scheduling algorithm. (10)

3. a) What is deadlock. Explain Banker's algorithms for deadlock avoidance. (10)
   b) Explain segmentation in detail. Describe how logical address is converted in to physical (10)
   address.

4. a) Explain file allocation methods in detail. (10)
   b) Explain Virtual memory and Demand paging (10)

5. a) Explain file management method in LINUX OS. (10)
   b) Explain device handling in LINUX. (10)

6. a) What are the various mechanisms implemented by operating system for allowing file (10)
   sharing.
   b) Calculate hit and miss using various page replacement methods (LRU, OPTIMAL, FIFO)(10)
   for following page frames sequence, page frame size is 3.
        4,7,3,0,1,7,3,8,5,4,5,3,4,7

7. a) Draw and explain paging hardware with TLB. (10)
   b) What is buffer cache? Write advantages and disadvantages of buffer cache in LINUX OS.(10)