T.E. (Computer) (Semester – V) (Revised 07-08) Examination, Nov./Dec. 2010
OPERATING SYSTEMS

Duration : 3 Hours   Total Marks : 100

Instructions : 1) Answer **any five** questions by selecting at least **one** from
                              each Module.
                         2) Assume appropriate data **wherever** necessary.

MODULE – I

1. a) What is an operating system ? Differentiate between Hard Real Time Systems
      and Soft Real Time Systems.   5

   b) With the help of appropriate diagrams explain all transitions of five state process
      model.   6

   c) Differentiate between process and thread with respect to operating system.   4

   d) What are the essential properties of batch systems ? What is the disadvantage of
      batch system ? Explain.   5

2. a) Write a short note on Windows Process scheduling.   5

   b) Explain how critical region is used in process synchronization in operating system. 5

   c) Explain implementation of Bounded Buffer Producer Consumer synchronization
      problem with the help of Semaphores.   6

   d) What is race condition ?   4

MODULE – II

3. a) With the help of example explain Bankers algorithm for deadlock avoidance.   6

   b) Explain how deadlock can be detected by giving suitable example.   6

   c) What is demand paging ?   3

   d) With the help of an example explain FIFO page replacement algorithm.   5

4. a) What is segmentation ? How is sharing of segments done in a segmented memory
      system ?   6

   b) Explain External and Internal Fragmentation with respect to memory management. 5

   c) Explain Multilevel Paging and inverted page table.   6

   d) What is thrashing ?   3

MODULE – III

5. a) Explain what do you mean by Buffering and Spooling with respect to kernel I/O Subsystem. 8

   b) Write a short note on DMA. 6

   c) Explain how File system management is done in Linux operating system. 6

6. a) List various disk scheduling algorithms ? Explain any two with example. 7

   b) What are bad blocks ? What are the different methods to handle bad blocks ? 6

   c) What is the difference between physical formatting and logical formatting. 4

   d) Differentiate between block and character devices. 3

MODULE – IV

7. a) Differentiate between access control list and capability list. 4

   b) What are different phases of virus ? Explain. 6

   c) Write short notes on : (2×5)

      i) Intruders

      ii) Worms

8. a) Explain the use of following commands : 5

      i) echo

      ii) passwd

      iii) Cal

      iv) pwd

      v) od.

   b) Write a shell program to generate squares of first 20 numbers. 4

   c) Write notes on : 6

      i) Pipes in UNIX shell

      ii) Redirection in UNIX shell.

   d) Write a shell program to find factorial of a given number. 5