[Total No. of Questions : 8]

T.E. (Comp.) (Semester - V) (RC) Examination, Nov./Dec. - 2011
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.
               3) Sketch diagram wherever required.

MODULE - I

Q1) a) Define the essential properties of batch operating systems.   **[3]**

b) How are threads different from processes? List the advantages of using threads in programming.   **[6]**

c) With the help of diagram explain Multilevel Feedback Queue scheduling.   **[6]**

d) Write short note on Multiprocessor Scheduling.   **[5]**

Q2) a) With the help of example explain race condition?   **[4]**

b) Explain various methods of Hardware support for mutual exclusion.   **[6]**

c) With the help of symbolic code explain implementation of bounded buffer producer-consumer problem using Semaphores.   **[6]**

d) What are Messages? How they are different from Semaphore variables?   **[4]**

MODULE - II

Q3) a) What is Deadlock? State necessary conditions for the occurrence of a deadlock. **[5]**

b) Explain Banker's Algorithm with the help of an example.   **[6]**

c) Write a short note on Deadlock Recovery.   **[6]**

d) What do you mean by a logical address space and a physical address space? **[3]**

Q4) a) Write a note on compaction.   **[5]**

b) Explain segmentation as memory management technique.   **[5]**

c) What is Demand paging? Enumerate and explain briefly the steps in handling page fault.   **[6]**

d) What is Thrashing?   **[4]**

MODULE - III

Q5) a) Explain different file access methods. [5]

b) Describe Acyclic graph directory structure. [5]

c) Write a short note on Unix File management. [5]

d) Explain steps in a DMA transfer with the help of diagram. [5]

Q6) a) Describe different services offered by Kernel I/O subsystem. [8]

b) Explain any two disk scheduling algorithms. [6]

c) Write a short note on swap space management. [6]

MODULE - IV

Q7) a) What are intruders? [3]

b) Write short notes on: [12]

 i) Viruses   ii) Worms

 iii) Access Matrix

c) Write a shell script to find factorial of a number. [5]

Q8) a) Explain following shell commands with example. [10]

 i) wc   ii) ls

 iii) who   iv) bc

 v) pwd

b) Write a shell script to generate squares of first 20 numbers. [5]

c) Write a shell program to generate Fibonacci series up to 'n' terms. [5]

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