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14SCS11

First Semester M.Tech. Degree Examination, June/July 2015
Advances in Operating Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Describe the essential properties of the following types of the operating systems :
 i) Time sharing ii) Embedded system. (06 Marks)
 b. Discuss with an example, the concept of multiprogramming and multiprocessing using systems. Also discuss in detail the advantages of multiprocessing systems. (08 Marks)
 c. Explain in detail, the UNIX system architecture with a neat diagram. (06 Marks)
- 2 a. Define and list out in detail, the differences between a thread and a process. Explain with an example the concept of sequential and multithreaded computation along with their advantages and disadvantages. (10 Marks)
 b. With a neat diagram, briefly explain the Linux operating system kernel components. (06 Marks)
 c. Discuss the POSIX file operation system calls. (04 Marks)
- 3 a. Explain any five major activity of an operating system in regard to main memory management. (05 Marks)
 b. List and briefly define four classes of real time scheduling algorithm. (04 Marks)
 c. Discuss in detail, how paged virtual memory is implemented in UNIX and Solaris. (08 Marks)
 d. List three advantages of user level threads over kernel level threads. (03 Marks)
- 4 a. Explain the distributed algorithm for mutual exclusion with an example. (08 Marks)
 b. Discuss the advantages of the use of micro kernel. (06 Marks)
 c. Discuss in detail the different states in windows thread using a state transition diagram. (06 Marks)
- 5 a. Discuss in detail, how processes are managed in UNIX SVR4. (08 Marks)
 b. List and briefly define five general areas of requirements for a real time operating system. (06 Marks)
 c. Explain the following system calls : i) fork() ii) join() iii) quit(). (06 Marks)
- 6 a. List and explain some of the potential advantages of process migration. (04 Marks)
 b. Discuss the three characteristics of a bot. (06 Marks)
 c. List and briefly define three intruder behaviour patterns. (06 Marks)
 d. What are the different methods of handling deadlocks? (04 Marks)
- 7 a. Explain with a figure how traps, interrupts and exceptions are handled by the windows NT/2000 organization. (06 Marks)
 b. With a neat diagram, explain the process and resources management organization in LINUX. (08 Marks)
 c. Explain the four mechanisms used by the Linux Kernel to perform the inter-process communication. (06 Marks)
- 8 a. With a neat diagram, explain the components of Tiny OS. (08 Marks)
 b. List and briefly define five different categories of synchronization granularity. (06 Marks)
 c. Discuss in detail the classification of viruses. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.