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10SCS12

First Semester M.Tech. Degree Examination, June 2012
Advances in Operating Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1
 - a. Define with an example, the concept of multiprogramming and multiprocessing system. Discuss in detail the advantages of multiprocessing systems. (08 Marks)
 - b. Explain the various operating system strategies involved from a user's perspective for the development of i) Batch processing systems ii) Personal computers and work station. (12 Marks)
- 2
 - a. Differentiate between windows NT, windows 95 and windows CE. (06 Marks)
 - b. 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)
 - c. With a neat diagram, explain the working of a modern operating system. (04 Marks)
- 3
 - a. Explain briefly concept of file as a resource element. Discuss in detail atleast three system cells related to files in windows and UNIX environment. (08 Marks)
 - b. Explain in detail the UNIX system architecture, with a neat figure. (06 Marks)
 - c. Explain the working of the system cells fork (), quit (), and join (). Write a small code segment using all the three system cells. (06 Marks)
- 4
 - a. Describe the various attributes used in windows. Create process () and create thread () system calls. (08 Marks)
 - b. Write a program in UNIX to print the message "How are you" using thread creation. (04 Marks)
 - c. Give a detailed explanation of memory management and process management as resource. (08 Marks)
- 5
 - a. Differentiate between trusted and untrusted software along with examples. (06 Marks)
 - b. Explain the various techniques by which a program in user mode requests services from the kernel. (06 Marks)
 - c. With a neat figure, explain in detail the working of a monolithic and modular kernel. Discuss their advantages and limitations. (08 Marks)
- 6
 - a. Discuss the different techniques adopted in a Linux organization to support inter process communication. (08 Marks)
 - b. Explain with a figure as to how traps, interrupts and exceptions are handled by the windows NT 2000 organisation. (06 Marks)
 - c. Describe in detail as to how memory is organized in a Linux system. (06 Marks)
- 7
 - a. Give a detailed explanation of the five layers that constitute the TCP-IP protocol. (05 Marks)
 - b. With a neat diagram, explain the various system calls that are involved in a connection oriented protocol. (07 Marks)
 - c. Explain with a neat figure, the different classes that exist in a client / server application architecture. (08 Marks)
- 8
 - a. Distinguish between : i) Reliability versus unreliability ii) Blocking versus nonblocking. (06 Marks)
 - b. Define clustering. What are the benefits of clustering? Also explain the different clustering methods along with their advantages and disadvantages. (08 Marks)
 - c. Write a short note on windows cluster server. (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.