

--	--	--	--	--	--	--	--	--	--

Second Semester M.Tech. Degree Examination, December 2010

Operating Systems and LINUX Internals

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1
 - a. Explain all the operating system strategies. (06 Marks)
 - b. What are the operations associated with the POSIX file system? Explain in brief. (06 Marks)
 - c. Explain the device management organization, with a neat figure. (08 Marks)

- 2
 - a. Explain the responsibilities of a process manager. (06 Marks)
 - b. What is the information contained in process descriptor? Explain. (06 Marks)
 - c. With a neat diagram, explain the process scheduler organization. (08 Marks)

- 3
 - a. Define semaphore. How is it used in a bounded buffer problem? Explain. (08 Marks)
 - b. Write a monitor code for solving the dining-philosopher problem. (08 Marks)
 - c. How is interprocess communication, adopted using hardware? Explain the primitives used for this. (04 Marks)

- 4
 - a. What are the necessary conditions for a deadlock? Explain. (08 Marks)
 - b. What is the distinction between process address and primary memory address? (04 Marks)
 - c. Differentiate between fixed partition and variable partition memory strategy. (04 Marks)
 - d. Write a note cache memory. (04 Marks)

- 5
 - a. Define Belady's anomaly. (03 Marks)
 - b. Consider the following page reference string.
 0, 1, 2, 3, 0, 1, 2, 3, 0, 1, 2, 3, 4, 5, 6, 7
 The primary memory is initially unloaded. Calculate the number of page faults with 3 memory frames using FIFO, optimal and LRU algorithm. (09 Marks)
 - c. Explain why, a file system, that supports the indexed sequential files, cannot be expected to have the same performance level, as pure sequentially accessed files. (08 Marks)

- 6
 - a. Explain how the process is run under LINUX, with a neat figure. (10 Marks)
 - b. How paging is adopted in LINUX? Explain. (10 Marks)

- 7
 - a. Why sockets are used in LINUX? Explain. (10 Marks)
 - b. Explain the structure of Ext2 file system. (10 Marks)

- 8
 - a. Write a short note on implementation of a scheduler. (05 Marks)
 - b. Explain the concept of the co-operating process. (05 Marks)
 - c. Write a note on segmentation. (05 Marks)
 - d. Write a note on interprocess communication in LINUX. (05 Marks)