

Code No: A0504, A5804

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**M.Tech I Semester Examinations, October/November-2011**

**OPERATING SYSTEMS**

**(COMMON TO COMPUTER SCIENCE, COMPUTER SCIENCE AND ENGINEERING)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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1. Describe the actions of the kernel when processes make system calls for the following purpose:
  - a) A receive request for a message
  - b) A memory request
  - c) Request for information concerning a process
  - d) Request to create a process. [12]
  
- 2.a) An application is to be coded using threads. Describe the condition under which you would recommend use:
  - i) Kernel-level threads
  - ii) User-level threads.

b) Describe the differences among short-term, medium-term and long term scheduling. [12]
  
3. Explain any four page replacement algorithms with suitable examples. [12]
  
- 4.a) Enumerate the conditions that characterize a dead-lock? Explain resource-allocation (graph) algorithm for dead lock detection with relevant diagrams.

b) Enumerate the methods for handling a deadlock. What are safe state and safe sequences? [12]
  
5. Explain the solution to the bounded-buffer producer/consumer problem using semaphores. [12]
  
6. Explain with a neat diagram the layered protocols in a ISO model. [12]
  
7. Explain the two approaches to deadlock detection in distributed systems
  - a) Centralized approach
  - b) Fully distributed approach. [12]
  
8. Explain Bully algorithm with a neat example. [12]

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