Code No: 09A50507

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech III Year I Semester Examinations, June/July-2014
OPERATING SYSTEMS
(Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks
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1.a) Enumerate and Explain about various System Calls.
 b) Explain about various types of Operating Systems.

2. Assume the following are the jobs to execute with one processor:

Job	Burst Time (nS)	Priority
1	4	2
2	3	1
3	2	3
4	4	1
5	3	2

The jobs are assumed to have arrived in the order 1, 2, 3, 4, 5. Give the *Gantt–Chart* illustrating the execution of these jobs and *turn–around times* of each job using *Round Robin (Quantum = 2)*, *Shortest Remaining Time First* and *Shortest Job First*.

3.a) Explain about *Critical Section Problem* with a suitable example.
 b) With an example describe about *Semaphores*.

4.a) Explain about *Segmented Memory Management* with a neat block diagram.
 b) Consider the *page reference string* **1, 3, 4, 0, 5, 3, 2, 1, 0, 4, 5, 2**. How many *page faults* occur for the *LRU* and *Optimal replacement algorithms with 4 frames* each?

5.a) Consider the following snapshot of a system using the banker's algorithm.

	Allocation A B C D	*Max* A B C D	*Available* A B C D
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

If a request from process P_1 arrive for (0, 4, 2, 0) can the request be granted immediately?
 b) Enumerate and explain the necessary conditions for deadlocks.

6.a) Explain about File System Interface.
 b) Give an example to explain File Allocation Methods.

7.a) Explain about *I/O STRTEAMS* in detail.
 b) Suppose that a disk drive has 3000 cylinders, numbered 0 to 2999. The drive is currently serving a request at cylinder 600, and the previous request was at cylinder 1200. The queue of pending requests in FIFO order is 800, 2600, 1600, 2000, 400, 2400, 1800, 1000, 1400, 2200, 2800, 200. Starting from the current head position, what is the *total distance (in cylinders)* that the disk arm moves to satisfy all the pending requests, for *LOOK* and *C-SCAN disk scheduling* algorithms?

8.a) Explain about *Revocation of Access Rights.*
 b) Explain about *Program threats.*
 c) Discuss about *Firewalls.*

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