END TERM EXAMINATION

SIXTH SEMESTER [B.TECH./M.TECH.] MAY-JUNE-2015

Paper Code: IT310 **Subject: Operating Systems Design Concept**

Time : 3 Hours **Maximum Marks :60**

Note: Attempt any five questions including Q.no.1 which is compulsory.

Q1 Explain briefly the following:- **(5x4=20)**

(a) Differentiate between Context Switching and Process switching.
(b) Differentiate between Semaphore and Monitor.
(c) Differentiate between Safe state and Unsafe state with respect to deadlock.
(d) Differentiate between Pre-emptive and Non-preemptive scheduling.

Q2 Define Race-Condition. How can Race-Condition be eliminated/resolved? Discuss the various technique to resolve the race-condition. **(10)**

Q3 (a) Discuss the various data-structures used in Process Control Block (PCB). **(5)**

(b) Explain the Process State Model and discuss the waiting state of a process. **(5)**

Q4 Discuss and explain Banker's algorithm to avoid deadlock. Provide an example to understand the algorithm. **(10)**

Q5 Discuss the following terminology:- **(2.5x4=10)**

(a) Segmentation
(b) Thrashing
(c) Buffering
(d) Demand Paging

Q6 Consider the following page reference strings: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults would occur for the following replacement algorithms, assuming '3' frames:- **(5x2=10)**

(a) LRU
(b) Optimal

Q7 Explain the various methods of Disk allocation strategy for allocating files in secondary memory. **(10)**

Q8 Write short notes on **any two** of the following:- **(5x2=10)**

(a) Differences between Linux and Windows.
(b) Recovery from deadlock.
(c) System calls.

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