

SB-4322

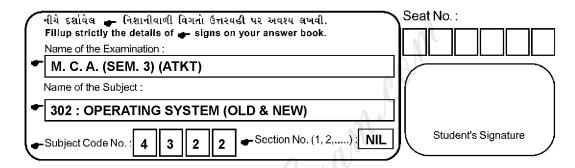
M. C. A. (Sem. III) (ATKT) Examination March/April - 2011

Paper - 302 : Operating System

(Old & New Course)

Time: 3 Hours] [Total Marks: 70

Instruction:



1 Attempt any two:

14

(a) Consider the following set of processes with arrival time, length of the CPU-Burst time (in milliseconds) and Priority:

Process	Arrival Time	Burst time	Priority
P1	0	7	2
P2	X 11'	1	4
P3	2	3	5
P4	3	4	1(highest priority)

Draw Gantt charts and calculate the average waiting time and turnaround time of above processes for :

- (i) Non-preemptive priority scheduling
- (ii) Round robin scheduling (time quantum 2 milliseconds)
- (b) Explain dual mode operation. Discuss working of System call.
- (c) Differentiate short term and long term scheduler. Explain the algorithm which is best suitable for long term scheduler.

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2 Attempt ANY TWO:

- 14
- (a) Explain: race condition, critical section and Semaphore.
- (b) Define deadlock. Explain differences between deadlock and unsafe state.
- (c) Define process. Discuss the use of PCB. List the contents of PCB.

3 Attempt ANY TWO:

14

- (a) Explain structure of Inverted Page Table. Discuss advantages and limitation of Inverted Page Table.
- (b) Explain internal and external Fragmentation. Explain compaction as solutions for fragmentation.
- (c) Explain demand paging. Discuss limitation of demand paging.

4 Attempt ANY TWO:

14

- (a) Explain 'Acyclic graph' directory structure. Compare it with 'Tree' directory structure.
- (b) Explain various techniques for free space management in file system.
- (c) Explain the structure of file allocation table in operating system DOS.

5 Do as directed:

- (a) Explain SCAN algorithm for disk scheduling. Discuss 7 its limitations.
- (b) Explain basic characteristics of Distributed Operating 7 System.

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