



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 :

नीचे दर्शाविए ← निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी.
Fillup strictly the details of ← signs on your answer book.

Name of the Examination :

Name of the Subject :

Subject Code No. : ← Section No. (1, 2,.....) :

Seat No. :

- 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	1	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.

- 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 its limitations. **7**
 - (b) Explain basic characteristics of Distributed Operating System. **7**
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