

MCA (Revised)

Term-End Examination

02854

December, 2014

MCS-041 : OPERATING SYSTEMS

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

Note : Question no. 1 is **compulsory**. Answer any **three** questions from the rest.

1. (a) Explain the concept of virtual memory. Also explain the difference between page and segment. 8
- (b) What is the need of file management ? Explain difference between Acyclic-graph directory and General-graph directory. 8
- (c) Explain the Non-continuous (Indexing and Checking) disk space management methods. 10
- (d) Explain any two page replacement policies of virtual memory. 6
- (e) Explain how memory management is done in Windows 2000 OS. 8

2. (a) What is Context Switching ? Explain the overhead incurred due to context switching on process and thread. 5
- (b) What is a Real-Time Operating System ? List features of Real-Time Operating Systems. 5
- (c) For the given 4 processes arriving at time 0 (zero) in the order with length of CPU time in milli seconds : 10

Process	Processing Time
P ₁	05
P ₂	08
P ₃	06
P ₄	02

Obtain average waiting time and turnaround time for SJF and FCFS scheduling algorithms for the above mentioned processes.

3. (a) Write and explain Lamport's algorithm for ordering of events in a distributed environment with an example. 10
- (b) Explain file management in UNIX OS, in comparison with WINDOWS OS file management. 5
- (c) Give an example of a Deadlock situation. Also explain how Deadlock can be prevented. 5

4. (a) What is Distributed Operating System ?
List any three design goals of Distributed Operating System. How is Distributed Operating System different from Network Operating System ? 10
- (b) What is Concurrent Programming ?
Explain Sleeping Barber Problem with the help of an example. 10
5. Explain the following in brief : 20
- (i) Locks
 - (ii) System Calls
 - (iii) Cache Memory
 - (iv) I/O Buffering
 - (v) Threads
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