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MCS-041

M. C. A. (REVISED)
Term-End Examination
June, 2019
MCS-041 : OPERATING SYSTEMS

Time : 3 Hours *Maximum Marks : 100*

(Weightage -75%)

Note : *Question No. 1 is compulsory. Attempt any three questions from the rest.*

1. (a) Draw the Gantt chart for the Round Robin scheduling policy and calculate the turnaround time, average waiting time, throughput and processor utilization for the following set of processes : 10

(Quantum in 3)

Process	Processing time
P_1	04
P_2	14
P_3	06
P_4	07

(b) What is Segmentation scheme in memory-management With the help of a diagram, explain the principles of operation, address translation and sharing in segmentation scheme. 10

(c) Explain the dining philosopher's problem and provide the solution using ***Monitors***. 10

(d) Describe the NTFS file system management in WINDOWS 2000. 10

2. (a) List and explain any ***two*** disk scheduling algorithms with the help of diagrams. 10

(b) Define deadlock in operating systems. How to prevent the deadlock in OS ? Explain. 10

3. (a) List and explain the various design issues involved in Distributed systems. 10

(b) Define Real Time Operating System (RTOS). Give any *two* example applications suitable for RTOS. Compare and contrast RTOS and time sharing systems. 10

4. (a) What is a Remote Procedure Call (RPC) ? How is it implemented ? Discuss briefly. 10

(b) List the contents of Process Control Block (PCB). Also explain the steps involved in "***Context switch***" between two processes with an illustration. 10

5. (a) Explain the cross-bar and hypercube interconnection networks with diagrams. Give its relative merits and demerits. 10

(b) Explain Ricart's and Agrawala's mutual exclusion algorithm for distributed systems. 10