MCA (Revised)

Term-End Examination

June, 2007

MCS-041 Ⓢ : OPERATING SYSTEMS

Time : 3 hours *Maximum Marks : 100*

(Weightage 75%)

Note : *Question number 1 is* ***compulsory****. Attempt any* ***three*** *questions from the rest.*

1. (a) Calculate the average turn around time, average waiting time, throughput and processor utilization for the following set of processes : *10*

Process	Processing time
P1	20
P2	1
P3	10
P4	5

Assume that the quantum is 3. Use Round Robin Scheduling Policy. Draw the Gantt chart also.

(b) What is a Resource allocation graph ? How can you conclude from the Resource allocation graph that the processes are in a state of deadlock ? Explain with an example. *10*

(c) Explain the Bell and LaPadula model. Also, explain the two properties of Biba integrity model. *10*

(d) Write and explain the Dekker's solution for mutual exclusion. *10*

2. (a) Explain the file system management in Windows 2000. *10*

(b) Explain the principles of operation of demand segmentation. *10*

3. (a) Define the term "Directory". Explain any two schemes of logical directory structures. *10*

(b) How does UNIX manage the processes ? Explain. *10*

4. (a) List various application models for writing distributed programs and explain any one of them. *10*

(b) Explain the two methods of allocating the disk space. *10*

5. (a) Draw and explain the flow of activity that takes place during a remote procedure call (RPC) between two networked systems. *10*

(b) What is a page-fault ? List all the steps of how a page-fault is serviced by the operating system. *10*