

MCA (Revised)
Term-End Examination
June, 2007

MCS-041 (S) : 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

