MCS-041

MCA (Revised)

Term-End Examination

June, 2012

01717

MCS-041 : OPERATING SYSTEMS

Time : 3 hours *Maximum Marks : 100*

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

1. (a) What is the difference between process and **10**
         thread ? Explain the steps in Process
         switching and thread switching.

    (b) Explain Single and Multiple Partition **10**
         Systems with reference to memory. Give
         suitable examples.

    (c) Explain the Crossbar and Fly Beranbe multi **10**
         processor interconnection network.

    (d) Calculate the average waiting time, average **10**
         turn around time for the processes given.
         Processes arrived at the same time and
         processing time is given in the following
         tables:

Process	Processing Time
P1	06
P2	08
P3	07
P4	03

2. (a) What is thrashing ? Explain the working **10** set model to avoid the thrashing.

   (b) Explain the concepts of shared memory, **10** distributed memory and distributed shared memory.

3. (a) What is Mutual Exclusion ? Explain **10** Dekker's solution for mutual exclusion.

   (b) Suppose the disk queue for the following **10** blocks is created at a time :
   50, 91, 150, 42, 130, 18, 140, 70, 60
   Assuming the disk head initially at block number 50, explain the disk scheduling for the following algorithms.
   (i) FCFS
   (ii) SSTF

4. (a) Explain the structure of UNIX and **10** Windows Operating Systems.

   (b) What is necessary and sufficient conditions **10** for the occurrence of the deadlock ? Explain with a suitable example.

5. Explain the following security models : **4x5=20**
   (a) Access Matrix Model
   (b) Mandatory Access Control
   (c) Discretionry Access Control
   (d) Rule Based Access Control