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Printed Pages—4

TCS—601

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID: 1077

Roll No.

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B.Tech.

(SEM VI) EVEN SEMESTER THEORY EXAMINATION,
2009-2010

OPERATING SYSTEMS

Time : 3 Hours

Total Marks : 100

- Note :** (i) Attempt **ALL** the questions.
(ii) All questions carry equal marks.

1. Attempt any four of the following : (4x5=20)

- Write down the advantages of batch processing system.
- What are the major functions of operating system ?
- Explain the main features of an real time operating system.
- Draw the layered structure of an operating system.
- Discuss the evolution of operating system.
- Write down about the following in brief :
 - System protection
 - System components

2. Attempt any four parts of the following : (4x5=20)

- Draw the process state diagram and explain the state transition.
- Provide the solution of critical section problem.
- Explain the binary semaphores with an example.
- What do you understand by concurrent process? Explain with an example.
- Write a brief note on Inter Process Communication.
- How concurrency problems are solved with Producer and Consumer problem?

3. Attempt any four parts of the following : (4x5=20)

- What do you understand by CPU Scheduling? Which one is best and why?
- Calculate turn around time and waiting time for following processes, if these processes are using :
 - SJF
 - FCFS

Process	Arrival time	Burst time
P ₁	0	8
P ₂	1	4
P ₃	2	9
P ₄	3	5

- Explain the different conditions of deadlock.
- Write down the methods for deadlock prevention.
- Discuss about Multiprocessor scheduling in brief.
- How the recovery from deadlock is done using combined approach?

4. Attempt any two parts of the following : (2x10=20)

- Discuss the paging system for memory management in details. Also give its advantages and disadvantages.
- Discuss about following in details :
 - Demand paging
 - Thrashing
- What do you understand by Page replacement? Name the algorithm available for Page replacement.
 - How many Page faults occur for optimal Page replacement algorithm with following reference string for four page frames :
1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2

5. Attempt **any two** parts of the following : (2x10=20)

- (a) Explain the file system and its function and how system calls are related with file system.
- (b) Write short notes on following :
 - (i) Memory mapped I/O.
 - (ii) Direct Access Method for file.
- (c) (i) Write down the criterion for selection of disk-scheduling algorithm.
- (ii) Suppose, a disk have 5000 cylinders, numbered 0 to 4999. The drive is currently sending a request at cylinder 143 and the previous was a cylinder 125. The queue of pending request in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130.

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