

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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22486
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)

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

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

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

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

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

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

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

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

- (a) Discuss the paging system for memory management in details. Also give its advantages and disadvantages.
- (b) Discuss about following in details :
 - (i) Demand paging
 - (ii) Thrashing
- (c) (i) What do you understand by Page replacement? Name the algorithm available for Page replacement.
 - (ii) 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