

ALCCS - NEW SCHEME

Time: 3 Hours

FEBRUARY 2012

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.
- Parts of a question should be answered at the same place.

- Q.1**
- Explain four main features of an operating system?
 - Explain various system security techniques.
 - Explain concept and working of Virtual machine.
 - Define the difference between preemptive and non-preemptive scheduling. Give an example.
 - Give the solution to Critical Section problem. Explain its necessary conditions.
 - Compare segmentation and paging. Give their applications.
 - What is Access Matrix and how it is used for protection? (7 × 4)
- Q.2**
- List five series provided by operating system. Explain storage management feature of operating system. (9)
 - What is System Call? Explain various types of system calls. (9)
- Q.3**
- What do you mean by a Process? What are its states? Explain PCB (Process Control Block). (9)
 - The following snapshot is given:

Process	Arrival Time	Burst Time
<i>P1</i>	0.0	7
<i>P2</i>	2.0	4
<i>P3</i>	4.0	1
<i>P4</i>	5.0	4
- Consider Non Preemptive and Preemptive SJF algorithm, find out average waiting time in both cases. (9)

Code: CT31**Subject: OPERATING SYSTEM**

- Q.4** a. Explain Reader's Writer's problem. Give an illustration. (9)
- b. What is Banker's Algorithm of Deadlock Avoidance? Explain. (9)
- Q.5** a. Explain any three disk scheduling techniques. Give an example. (9)
- b. On a simple Paged system, associative registers hold the most active page entries and the full page table is stored in the main memory. If references satisfied by the associative registers take 90 ns and reference through the main memory page table take 220 ns, what is the effective access time if 60% of all memory references find their entries in the associative registers. (9)
- Q.6** a. Give a page reference string: 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1. Suppose there are three free frames initially, calculate how many page fault will occur? (9)
- b. What are the various file access methods? Explain Sequential access method. How it can be simulated on direct access file? (9)
- Q.7** a. Explain characteristic features of real-time Kernals and real time CPU scheduling. (5)
- b. Explain the following distribution synchronization techniques:
(i) Mutual Exclusion
(ii) Election algorithm
(iii) Atomicity (9)
- c. Explain compression technique in multimedia. (4)