

512005

Seat No. _____

Second Year B. C. A. Examination

April / May – 2003

Operating System & Unix : Paper - 206

Time : 3 Hours]

[Total Marks : 50

- Instructions :** (1) Figures to the **right** indicate marks allotted to that question.
(2) Make suitable assumption wherever **necessary**.
(3) Begin new question on new page.

1 Answer any **five** of the following : **10**

- (1) Give significance of pipe and tee features of Unix.
- (2) Explain and differentiate CP and mv commands.
- (3) Explain the concept of system call.
- (4) State the difference between preemptive and non-preemptive scheduling.
- (5) Explain the advantage of Clock Replacement algorithm over Second chance page Replacement algorithm.
- (6) Explain various File Access Methods.
- (7) Write the four necessary conditions for deadlock.

2 (a) Explain the Layered System Structure of Operating System. **3**

(b) Explain the concept of Virtual Memory. **3**

(c) Given the following : **4**

<i>Process</i>	<i>Arrival Time (ms)</i>	<i>Burst Time (MS)</i>
P1	0	10
P2	1	4
P3	2	5

Find the average waiting time and the turn-around time for the following process scheduling algorithm :

- (i) FCFS
- (ii) SJF
- (iii) Round Robin. (Time Quantum = 5 MS)

OR

- 2** (a) Explain Operating System as Resource Manager. **3**
- (b) Discuss Paging as a Virtual Memory Technique. **3**
- (c) Write short note on Event Counters. **4**

- 3** (a) Discuss various directory Operations. **3**
- (b) Explain Memory Management Unit (MMU) **3**
- (c) Write short note on Peterson's Solution. **4**

OR

- 3** (a) Write the algorithm to solve the sleeping barber problem. **3**
- (b) Explain the various kinds of file structure. **3**
- (c) For the memory with 3 page frames and the following reference strings : **4**

4 3 4 1 2 5 3 2 1

Find out the number of page faults for the following page replacement algorithm :

- (i) FIFO
- (ii) Optimal
- (iii) LRU.

- 4** (a) Explain various deadlock Recovery Methods. **3**
- (b) Discuss various features of Unix Operating System. **3**

- (c) Disk requests come to the disk driver for cylinders 15, 25, 10, 6, 45, 15, 37 in that order. One seek takes 10 msec per cylinder moved. How much seek time is needed for.. : 4

- (1) First Come First Serve
- (2) Closest cylinder next
- (3) Elevator algorithm. (Moving upward)

Note : In all the cases the arm is initially at cylinder 25.

OR

- 4 (a) Write short note on I/O device drivers. 3
- (b) What are filters ? Explain any three filters. 3
- (c) Find out the deadlock status for the following snapshot of 5 processes, using deadlock detection of multiple resource of each type algorithm : 4

Processes : {P0, P1, P2, P3, P4}

Resources : {A, B, C}

E = {7, 2, 6} and A = {0, 0, 0}

	<i>Allocation</i>	<i>Requests</i>
P0	010	000
P1	200	202
P2	303	000
P3	211	100
P4	002	002

- 5 (a) Give the purpose and syntax of the following commands : 5
- (i) spell
 - (ii) cmp
 - (iii) date
 - (iv) diff
 - (v) comm.

(b) Write a Shell script to check whether the given number is prime or not. **3**

(c) Explain Redirection with suitable example. **2**

OR

5 (a) Discuss various types of files supported by Unix. Also explain the use of chmod command. **5**

(b) Write a shell script to count and display the number of words that are starting with '0' (zero) and ending with '*'. **3**

(c) Explain Positional Parameters. **2**
