Roll No						
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Total No. of Questions : 09

B.Tech. (CSE) (Sem.-4) OPERATING SYSTEMS Subject Code : BTCS-401 M.Code : 56604 Date of Examination : 07-01-23

Time: 3 Hrs.

Max. Marks : 60

Total No. of Pages : 02

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- (a) Differentiate between long term scheduler from short term scheduler.
- (b) Distinguish between a process and a program.
- (c) What is the difference between a page table and a page frame?
- (d) What are logical and physical pages?
- (e) What is the need of page replacement?
- (f) What does the acronym UNIX stands for?
- (g) What is the difference between kernel and shell?
- (h) What is the role of i/o controller?
- (i) What do you mean by a file? What are its attributes?
- (j) Explain the difference between time-sharing and multi-programming.

SECTION-B

- 2. What are the various views of the operating system? Explain.
- 3. What is a PCB? What is stored in it? What is its role in the CPU scheduling? Explain.

- 4. Explain the structure of the Unix operating system in detail.
- 5. Explain the File Protection and Security methods.
- 6. Explain the file system architecture.

SECTION-C

7. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. the drive currently Services a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending request in FIFO order is:

86,1470,913,1774,948,1509,1022,1750,130

Starting from the current position, what is the total distance(in cylinders) that the disk arm moves to satisfy all pending requests, for each of the following algorithms :

- i) FCFS
- ii) SSFT
- iii) SCAN
- iv) LOOK
- v) C-SCAN.
- 8. Consider the following page-reference String :

1,2,3,2,5,6,3,4,6,3,7,3,1,5,3,6,3,4,2,4,3,4,5,1

Indicate the page faults and calculate total number of page faults and successful ratio of FIFO, optimal and LRU algorithms. Assume that there are four frames and initially all the frames are empty.

9. **Describe the following :**

- i) Logical and physical address
- ii) Belady's Anomaly
- iii) Hit Ratio
- iv) Virtual memory concept
- v) Page replacement algorithms.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.