

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Information Technology) (Sem.–4)

OPERATING SYSTEMS

Subject Code : BTIT-402-18

M.Code : 77539

Date of Examination : 13-05-2024

Time : 3 Hrs.

Max. Marks : 60

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. Answer briefly :

- (a) Explain the concept of Virtual Machine in brief.
- (b) Explain in brief about System calls.
- (c) List various CPU scheduling criteria.
- (d) Define the term context switching.
- (e) Differentiate between Internal and External fragmentation.
- (f) Write at least two advantages of virtual memory concept.
- (g) What is Race condition in inter-process communication?
- (h) Define deadlock avoidance.
- (i) Define the term Boot-Block.
- (j) Explain in brief about device drivers.

SECTION-B

2. Write a detailed note on Layered approach in reference to operating system structure.
3. Explain in detail about the Semaphore.
4. Define the term deadlock. Explain in brief about deadlock prevention.
5. Explain various file Allocation Methods in detail.
6. Write a detailed note on paging.

SECTION-C

7. Explain the following CPU scheduling algorithms with examples :
 - (a) Shortest Job First
 - (b) FCFS
 - (c) RR.
8. What is disk scheduling? Explain in detail the various algorithms of Disk scheduling with examples.
9. What is the need of Page replacement? Consider the following reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

Find the number of Page Faults with FIFO, Optimal Page replacement and LRU with three free frames which are empty initially. Which algorithm gives the minimum number of page faults?

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.