Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) (2018 Batch) (Sem.–4)

OPERATING SYSTEMS

Subject Code : BTCS-402-18

M.Code : 77628

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

Write briefly :

1. Difference between Time Sharing and Multiprogramming.
2. FORK system call is used for?
3. What are four necessary conditions for deadlock to occur?
4. What is Inter Process Communication?
5. What is Multilevel Queue Scheduling?
6. Define Critical Section in Process Synchronization.
7. What is Thrashing?
8. Define Process Control Block.
9. List some page replacement algorithms.
10. What is Boot Block?

SECTION-B

11. What is a Semaphore? Explain busy waiting semaphores.
12. Define Deadlocks. Explain different methods of deadlock handling.

13. Compare paging with segmentation with respect to the amount of memory required by the address translation structures in order to convert virtual addresses to physical addresses.

14. What is Disk Scheduling? Explain the following types of disk scheduling by giving an example :

    a. SCAN

    b. C-SCAN Scheduling

15. What is Distributed Operating System? Explain main issues in designing distributed operating system.

SECTION-C

16. Discuss Preemptive and Non-preemptive CPU Scheduling algorithms. Assume you have the following jobs to execute with one processor, with the jobs arriving in the order listed here :

i	T(pi)
0	80
1	20
2	10
3	20
4	50

    a. Suppose a system uses FCFS scheduling. Create a Gantt chart illustrating the execution of these processes?

    b. What is the turnaround time for process p3?

    c. What is the average wait time for the processes?

17. What do you mean by Virtual Memory? Why it is needed? Discuss the hardware support required by the operating system to implement the virtual memory concept.

18. Write a Short note on :

    a. Dinning Philosophers problem

    b. Bad block *vs.* Boot Block in Disk Scheduling.

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.