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Total No. of Pages: 02

Total No. of Questions: 09

**B.Tech. (AI&ML / CE / CSE) / CSE (Internet of Things and Cyber Security
including Block Chain Technology) (Sem. – 4)**

OPERATING SYSTEMS

Subject Code: BTCS-402-18

M Code: 77628

Date of Examination : 06-01-2023

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. Write briefly:

- a) List different functions of Operating system?
- b) Define spooling
- c) What is a sector?
- d) Difference between turnaround time and response time.
- e) What is long term scheduler?
- f) Why do we need proc?
- g) Define Semaphore.
- h) State Belady's Anomaly.
- i) Define thrashing.
- j) What is the impact of page size on the overall system performance?

SECTION-B

2. What is process management? Discuss process state diagram.
3. What is arrival time of a process? Suppose a new process in a system arrives at an average of six processes per minute and each such process requires an average of 8 seconds of service time. Estimate the fraction of time the CPU is busy in a system with a single processor.
4. What is page replacement? Explain LRU page replacement algorithm with the help of example.
5. Describe bounded buffer problem in process synchronization.
6. What is deadlock? Explain four necessary and sufficient conditions for a deadlock to occur.

SECTION-C

7. What is memory management? Compare and contrast paging and segmentation memory management techniques.
8. What are differences between time sharing, multiprogramming and multitasking operating systems?
9. Write a Short note on
 - a) Resource Allocation graph
 - b) Page fault
 - c) Fork() and exec() system call
 - d) Starvation.

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