

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (CSE/AI&DS/AI&ML/AI/Cyber Security/DS/IoT and Cyber Security included Blockchain)(Sem.-4)

OPERATING SYSTEM

Subject Code :BTCS-402-18

M.Code :77628

Date of Examination : 19-12-2025

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) Define operating system services.
- b) What is a system call?
- c) What is context switching?
- d) State one objective of CPU scheduling.
- e) Define mutual exclusion.
- f) What is a semaphore?
- g) Define deadlock.
- h) What is internal fragmentation?
- i) What is meant by device driver?
- j) What is meant by virtual memory?

SECTION-B

2. Explain layered, monolithic and microkernel structures of operating systems.
3. Explain process states and process control block (PCB) with a neat diagram.
4. Write a detailed note on the Producer-Consumer problem.
5. What is Banker's algorithm? Explain briefly with an example.
6. Describe file allocation methods used in file systems.

SECTION-C

7. Discuss in detail various types of operating systems with examples.
8. Explain different page replacement algorithms with suitable examples.
9. Describe disk scheduling algorithms (FCFS, SSTF, SCAN, C-SCAN) with illustrations.

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.