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.