

No. of Printed Pages  
**615131-NEP**

**262(N)**

**B. Sc. (Fifth Semester)  
EXAMINATION, 2025-26**

**COMPUTER SCIENCE  
(Operating System)**

Time : Two Hours]

[Maximum Marks : 70

**Note :**

- (i) Attempt any five questions from Section (A) and any three questions from Section B.
- (ii) Answer each question of Section (A) within 50 words.
- (iii) Limit your answer within the given answer book. Additional answer book (B-Answer book) should not be provided.

**SECTION – A**

**Note :** Attempt any five question. Each question carries 5 marks.

1. Explain how an operating system acts as a resource

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(1)

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- manager. Illustrate with examples of CPU, memory and I/O management.
2. How does a time-sharing system differ from multiprogramming system?
  3. Explain the role of system calls and interrupt handling in OS operations.
  4. Describe the process control system calls and explain their functions.
  5. Describe the different types of schedulers with the help of an example.
  6. Explain the First Come First Served disk scheduling algorithm with an example.

### SECTION – B

**Note :** Attempt any three question. Each question carries 15 marks.

1. Write a detailed note on the operating system structure and explain how different modules interact with each other.

2. Describe the various protection and security mechanisms used in operating systems to prevent unauthorized access.
3. Discuss the advantages of modular and microkernel architectures over monolithic systems in modern operating systems.
4. Explain the critical-section problem and the three requirements a solution must satisfy. Discuss the role of semaphores and mutex locks in solving synchronization problems.
5. Write a detailed note on the functions and differences between long-term, short-term, and medium-term schedulers.
6. Explain how demand paging and page replacement algorithms contribute to efficient virtual memory management.