RAN-2511001105050001

RAN-2511001105050001

B.Sc. (I.T.) NEP (Sem. - V) Examination February - 2026

Minor - 2 : Operating System (Paper - 505)

[Total Marks: 50

સૂચના : / Instructions
(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book

Seat No.:

Student's Signature

Q. 1 Do as directed: (Any Ten) **10**

1) What is booting?
2) List two types of Scheduler.
3) What is swapping?
4) What is internal fragmentation?
5) What is Page Fault?
6) Why do operating systems use demand paging instead of loading the entire process at once?
7) What is compaction?
8) Define rotational latency in disk management.
9) Briefly describe aging. How does it help in CPU scheduling?
10) What is a race condition? Discuss techniques to handle it.
11) What is Thrashing?
12) What is Spooling?

Q. 2 (A) Answer following questions(Any Two) **10**

1) Explain the difference between single-user and multi-user operating systems with examples.
2) What is a deadlock? Explain various methods of deadlock detection.
3) Define a process. Explain the different states of a process with diagram.

Q. 2 (B) Answer following questions(Any One) **4**

1) Differentiate between paging and segmentation in memory management.
2) Explain SJF scheduling algorithm with proper example.

Q. 3 (A) Answer following questions(Any Two) **10**

1) Explain various file operations.
2) Discuss the critical section problem and explain how semaphores solve it.
3) Explain the concept of linked allocation in file systems. Discuss pros and cons of it.

Q. 3 (B) Answer following questions(Any One) **4**

1) Explain LRU(Least Recently Used) page replacement policy with a suitable example.
2) Explain Tree-level directory structure with its advantages and disadvantages.

Q. 4 **Answer following question (Any Three)** **12**

1) What is thread? Explain multithreading in detail.
2) Compare contiguous vs non-contiguous allocation strategies.
3) Write a note on Free Space management and its technique.
4) Discuss the significance of device characteristics in designing an I/O system.

———