Roll No. : .....

Total No. of Questions : 9] [Total No. of Printed Pages : 4

BCA-3003

BCA (Semester-III) (NEP) Examination, 2024-25

(Major)

OPERATING SYSTEM

[Paper : Third]

Time : 2 Hours] **[Maximum Marks : 75**

Note : 1. Attempt questions from **all** sections as directed.

2. The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

3. "B" copy will not be provided.

Section-A

(Short Answer Type Questions)

Note : All questions are **compulsory**. Each question carries **5** marks. (Maximum words limit : **150** words) [9×5=45]

Section-C

(Long Answer Type Questions)

Note : Attempt **any one** question from the following. Each question carries **15** marks. [1×15=15]

6. (a) Write a short note on dedicated devices.

   (b) What are the advantages(any three) and disadvantages(any three) of Contiguous Allocation?

7. (a) Define and explain the various file access methods.

   (b) Explain the concept of file system protection and security.

8. (a) Write the comparison between Virtual devices and Storage devices.

   (b) Write advantages and disadvantages of various file access methods.

9. Define Directory. Draw and explain all types of directories structures.

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1. (a) Write the comparison between Batch processing OS and Multiprogramming OS (any three).

(b) What is the purpose of system call?

(c) Explain the Convoy effect with example.

(d) Write the comparison between Job scheduling and CPU scheduling.

(e) Write the comparison between Turnaround time and Completion time.

(f) Distinguish between Preemptive and Non Preemptive Scheduling.

(g) Define Starvation in Deadlock.

(h) Explain the concept of Spooling.

(i) List two differences between Logical and Physical addresses.

Section-B

(Long Answer Type Questions)

Note : Attempt **any one** question from the following. Each question carries **15** marks. [1×15=15]

2. Write short note on the following :

(a) Virtual Memory

(b) Deadlock Avoidance

(c) Fragmentation

3. (a) Write a short note on Resource Allocation Graph with example.

(b) Define and explain the page replacement algorithms.

4. Consider the following page reference string: 1, 2, 3, 4, 2, 1,6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. Identify the no.of page faults would occur for the following page replacement algorithms, assuming four frames.

(a) LRU replacement

(b) Optimal replacement

5. Calculate Average Waiting time and Average Turnaround Time by using Round Robins (RR) algorithm.(Time Quantum=2ms)

Process No.	Arrival Time (ms)	Burst Time (ms)
P1	0	12
P2	1	15
P3	2	11
P4	3	21