6. (a) What are the various disk-scheduling algorithms ? Explain.

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

(Or)

7. (a) Define and explain the concept of the file system.

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

(Or)

8. (a) What are the various file extensions ? Explain.

   (b) Define Directory. Explain all types of directories.

(Or)

9. Given the following queue - 95, 180, 34, 119, 11, 123, 62, 64 with the Red-write head initially at the track 50 and the tail track being at 199.

   Calculate the Total Head movements by using :

   (a) First Come First Serve (FCFS)

   (b) Shortest Seek Time First (SSTF)

   ••••

Paper Code – BCA 3003

BCA 2nd Year (Semester-III) EXAMINATION, 2023-24

OPERATING SYSTEM

PAPER-III

K-016

Time : Two Hours]   [Maximum Marks : 75

Note- This paper consists of three Section A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy (B Copy) will be provided.

Section-A

(Short Answer Type Questions)

Note- All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks.

1. (A) Write the comparison between Hard Real Time and Soft Real Time (any three).

   (B) What is the purpose of system call.

   (C) Explain convoy effect with example.

(Or)

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 three frames are initially empty.

   (a) LRU replacement

   (b) Optimal replacement

   (Or)

5. Calculate Average waiting time by using Shortest Remaining Time First (SRTF) algorithm.

Process No.	A.T.	B.T.
P1	0	2
P2	1	5
P3	2	1
P4	3	2
P5	3	3
P6	6	6

Section-C
(Long Answer Type Questions)

Note- This section contains four questions from which **one** question is to be answered as long question. Each question carries 15 marks.

(D) Distinguish between batch systems and time sharing systems.

(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 Demand Paging.

(I) List two differences between logical and physical addresses.

Section-B
(Long Answer Type Questions)

Note- This section contains four questions from which **one** question is to be answered as long question. Each question carries 15 marks.

2. Write short note on the following :

   (a) Thrashing

   (b) Deadlock detection

   (c) Segmentation

   (Or)

3. (a) Write the difference between long term scheduler and short term scheduler.

   (b) Define and explain page replacement algorithms.