



CBCS SCHEME

18EC641

Sixth Semester B.E. Degree Examination, June/July 2023 Operating System

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is an operating system? Explain the goals of OS. (08 Marks)
b. Explain the common tasks performed by OS. (07 Marks)
c. Name the different classes of OS. (05 Marks)

OR

- 2 a. Explain the Batch Processing OS. (10 Marks)
b. Discuss the following using timing chart :
i) When CPU bound program has higher priority
ii) When I/O bound program has higher priority. (10 Marks)

Module-2

- 3 a. Define process, process states and with a state transition diagram, explain the state transition of a process. (10 Marks)
b. For a given set of process perform FCFS and SRN scheduling and compare their performance in terms of mean turnaround and weight turnaround :

Process	P ₁	P ₂	P ₃	P ₄	P ₅
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

(10 Marks)

OR

- 4 a. Explain the different types of threads. (10 Marks)
b. For the following process perform RR and LCN scheduling :

Process	P ₁	P ₂	P ₃	P ₄	P ₅
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

(10 Marks)

Module-3

- 5 a. Compare the contiguous and non-contiguous memory allocation. (08 Marks)
b. Explain the following :
i) Internal and external fragmentation
ii) Paging and segmentation
iii) Page and page frames. (12 Marks)

OR

- 6 a. With a neat sketch explain demand paging preliminaries. (10 Marks)
b. Consider the page reference string 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5. Calculate the page faults. Using FIFO and LRU page replacement policies with a frame size 3. (10 Marks)

1 of 2

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Explain the interface between file system and IOCS. (10 Marks)
b. Explain the sequential file organization and direct file organization. (10 Marks)

OR

- 8 a. Explain the allocation of disk space. (10 Marks)
b. Explain the file types, attributes and file operations. (10 Marks)

Module-5

- 9 a. Define message passing. Explain how to implement message passing. (08 Marks)
b. Define mailbox. Explain the advantages of mail boxes. (06 Marks)
c. Explain the issues in message passing. (06 Marks)

OR

- 10 a. Define deadlock. Discuss resource request and allocation graph and wait – for – graph for a system containing resource class and processes. (10 Marks)
b. Explain deadlock detection algorithm. (10 Marks)
