

# CBCS SCHEME



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18EC641

## Sixth Semester B.E. Degree Examination, Jan./Feb. 2023 Operating System

Max. Marks: 100

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

### Module-1

- 1 a. Define operating system. What are the goals of an operating system? Explain. (10 Marks)  
b. Explain principal functions of operating system. (10 Marks)

OR

- 2 a. Explain the essential properties of the following types of operating systems :  
i) Batch ii) Time sharing iii) Real Time  
iv) Multi programming v) Distributed. (15 Marks)  
b. What are the main advantages of the layered approach to system design? (05 Marks)

### Module-2

- 3 a. Define a process. With a state transition diagram explain the state transitions for a process. (12 Marks)  
b. Explain the different fields of the Process Control Block (PCB). (08 Marks)

OR

- 4 a. What are the advantages of threads over process? Explain Kernel level threads. (12 Marks)  
b. Define scheduling. Explain scheduling in UNIX and LINUX. (08 Marks)

### Module-3

- 5 a. Compare contiguous and non-contiguous memory allocation techniques. (12 Marks)  
b. Explain : i) Internal and external fragmentation ii) Paging and segmentation. (08 Marks)

OR

- 6 a. Explain : i) Logical and physical address ii) Belady's anomaly. (08 Marks)  
b. Explain : i) Memory management strategies  
ii) Operating system functions of memory management. (12 Marks)

### Module-4

- 7 a. Explain why do we require virtual memory. (08 Marks)  
b. Explain any two page replacement algorithm. (12 Marks)

OR

- 8 a. Explain File System and IOCS. (10 Marks)  
b. Explain fundamental file operations. (10 Marks)

### Module-5

- 9 a. What is directory? Explain different directory structures. (12 Marks)  
b. Explain different file attributes and file types. (08 Marks)

OR

- 10 a. Define Deadlock. Explain different deadlock handling approaches. (10 Marks)  
b. With necessary sketches, explain the different deadlock prevention approaches. (10 Marks)

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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.