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17EC553

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022 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. Define OS. Write its goals. (06 Marks)
b. Explain various computational structures of OS. (08 Marks)
c. Explain various resources allocation strategies. (06 Marks)

OR

- 2 a. Explain different classes of OS. (10 Marks)
b. Explain multiprogramming Operating System. (05 Marks)
c. Explain time sharing Operating System. (05 Marks)

Module-2

- 3 a. Define Process. (02 Marks)
b. With the help of state transition diagram explain different states of a process. (10 Marks)
c. What is meant by thread? Explain TCB and discuss three methods of implementing threads. (08 Marks)

OR

- 4 a. Explain the concept of scheduling. (04 Marks)
b. Calculate the turn around time and waited turn around time of the given process for
i) FCFS ii) SRN policies. (08 Marks)

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

- c. Explain long term and medium and short term scheduling. (08 Marks)

Module-3

- 5 a. What is memory compaction? (03 Marks)
b. Explain contiguous and noncontiguous memory allocation. (08 Marks)
c. Write short notes on:
i) Paging
ii) Segmentation
iii) Segmentation with paging. (09 Marks)

OR

- 6 a. Explain demand paging and demand loading of pages in detail. (10 Marks)
b. Write short note on:
i) First-In-First Out (FIFO)
ii) Least Recently Used.(LRU) page replacement policies. (10 Marks)

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 system and IOCS layers. (06 Marks)
b. Explain the fundamental file organization. (09 Marks)
c. Explain directory structure. (05 Marks)

OR

- 8 a. Explain file control block. (04 Marks)
b. Explain the working of file action at open and close. (10 Marks)
c. Explain indexed disk space and allocation. (06 Marks)

Module-5

- 9 a. Define message passing. Explain how to implement message passing. (10 Marks)
b. Explain operation of mail boxes and its advantages. (10 Marks)

OR

- 10 a. Define a deadlock. Explain deadlock in resource allocation. (10 Marks)
b. Explain the conditions for a resource deadlock. (04 Marks)
c. Explain deadlock deflection algorithm and resolution. (06 Marks)
