CBCS SCHEME

USN | | | | | | | | | |

18EC641

Sixth Semester B.E. Degree Examination, July/August 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 operating system. Explain the goals of an operating system. **(10 Marks)**

b. What are Computational structures? Explain the operation of an operating system. **(10 Marks)**

OR

2 a. Explain:
i) Partition based
ii) Pool based resource allocation strategies with a neat diagram. **(10 Marks)**

b. Briefly explain the different classes of operating system, specifying the primary concern and key concepts used. **(10 Marks)**

Module-2

3 a. Explain the fundamental state transition for a process with state transition diagram. **(10 Marks)**

b. For the following set of process perform FCFS and SRN scheduling. Calculate mean turn around time and mean weighted turn around.

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. Define threads. Explain: i) User – level threads ii) Kernel level threads. **(10 Marks)**

b. For the following set of process perform RR and LCN scheduling. **(10 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

Module-3

5 a. Explain contiguous and non contiguous memory allocation. **(10 Marks)**

b. Explain: i) Paging ii) Segmentation. **(10 Marks)**

OR

6 a. Explain the important concepts in the operation of demand paging with diagram. **(10 Marks)**

b. For the following page reference string apply FIFO and LRU page replacement policies to find number of page faults. Use alloc = 4.
Page reference string: 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5
Reference time string: $t_1, t_2, t_3, t_4, t_5, t_6, t_7, t_8, t_9, t_{10}, t_{11}, t_{12}, t_{13}$.

(10 Marks)

Module-4

7 a. Explain the different file operations performed by processes. (10 Marks)
b. Explain the interface between file system and IOCS. (10 Marks)

OR

8 a. Explain the working of linked allocation of disk space with a figure. (10 Marks)
b. Explain implementing file access with neat figure. (10 Marks)

Module-5

9 a. Explain the primary issues in implementing message passing. (10 Marks)
b. Explain the working of blocking and non-blocking delivery protocols. (10 Marks)

OR

10 a. Define dead lock. Explain the condition of dead lock in resource allocation. (10 Marks)
b. Explain the three fundamental approaches used in dead lock handling. (10 Marks)

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