

CBCS SCHEME



17EC553

Fifth Semester B.E. Degree Examination, Aug./Sept.2020 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. What are the goals of an operating system? Explain. (07 Marks)
b. Explain the common tasks performed by the operating system. (08 Marks)
c. What are the different classes of operating system? (05 Marks)

OR

- 2 a. Explain the multiprogramming operating system. (07 Marks)
b. Explain the features of real time operating system. (06 Marks)
c. With a neat figure. Explain the turnaround time in batch processing system. (07 Marks)

Module-2

- 3 a. What are the fundamental process states? With a state transition diagram explain the state transition for a process. (10 Marks)
b. For the following set of process perform FCFS and SRN scheduling. Calculate mean turnaround time and mean weighted turnaround.

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

(10 Marks)

OR

- 4 a. What is a thread? Explain the types of threads. (10 Marks)
b. For the following set of process perform RR and LCN scheduling.

Process	P ₁	P ₂	P ₃	P ₄	P ₅
Admission 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. (10 Marks)
b. Explain the following :
i) Internal and External fragmentation
ii) Paging and Segmentation
iii) Page and Page frames. (10 Marks)

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OR

- 6 a. Write a neat sketch and explain the concepts involved in demand loading of a page. (10 Marks)
- b. Explain FIFO and LRU page replacement policies. Show the operation of FIFO and LRU policies for the page reference
String : 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5 and time reference
String : $t_1, t_2, t_3, t_4, t_5, t_6, t_7, t_8, t_9, t_{10}, t_{11}, t_{12}, t_{13}$ number of page frames is 3. (10 Marks)

Module-4

- 7 a. Explain the file system and IOCS. (08 Marks)
- b. Explain the fundamental file organizations. (06 Marks)
- c. Explain the fields of directories. (06 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 mailboxes. (06 Marks)
- c. Explain the issues in message passing. (06 Marks)

OR

- 10 a. Define a deadlock. Explain the conditions for resource deadlocks. (10 Marks)
- b. Explain the deadlock handling approaches. (06 Marks)
- c. Define the following :
i) Feasible request
ii) Safe request. (04 Marks)

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