



CBCS SCHEME

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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)

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)
