

# CBCS SCHEME

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15EC553

## Fifth Semester B.E. Degree Examination, June/July 2018 Operating System

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Give the facets of user convenience in an operating system. (08 Marks)  
b. What are the common tasks performed by operating system? Explain. (08 Marks)

OR

- 2 a. Explain briefly the different classes of operating system with primary concern and key concepts. (08 Marks)  
b. With a neat figure explain the turnaround time in batch processing system. (08 Marks)

### Module-2

- 3 a. What are fundamental process states, with a state transition diagram explain the state transitions for a process. (08 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. (08 Marks)  
b. For the following set of process perform FCFS and SRN scheduling to calculate mean turnaround time and mean weighted turnaround.

Process	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	P <sub>5</sub>
Admission time	0	2	3	4	8
Service time	3	3	5	2	3

(08 Marks)

### Module-3

- 5 a. Give the comparison between contiguous and noncontiguous memory allocation. (08 Marks)  
b. With a neat figure explain the working of address translation in noncontiguous memory allocation. (08 Marks)

OR

- 6 a. Give the comparison between paging and segmentation. List the functions of paging hardware. (08 Marks)  
b. Consider the string 0, 1, 2, 3, 0, 1, 2, 3, 0, 1, 2, 3, 4, 5, 7. Calculate the page faults. Using FIFO and LRU page replacement policies with a frame size 3. (08 Marks)

Module-4

- 7 a. Explain file system and IOCS. (08 Marks)  
 b. With a figure explain the working of linked allocation of disk space. (08 Marks)

OR

- 8 a. Give the description of different fields in a typical directory entry. (08 Marks)  
 b. Explain the working of file action at close. (08 Marks)

Module-5

- 9 a. Give the two important issues in message passing. Explain direct and indirect naming in message passing. (08 Marks)  
 b. Explain mailboxes. Give the advantages of mailboxes. (08 Marks)

OR

- 10 a. Explain the conditions for resource deadlock. (08 Marks)  
 b. Using deadlock detection algorithm for the following example of system check, whether the deadlock exist in the system or not.

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
P <sub>1</sub>	2	1	0
P <sub>2</sub>	1	3	1
P <sub>3</sub>	1	1	1
P <sub>4</sub>	1	2	2

Allocated Resources

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
P <sub>1</sub>	2	1	3
P <sub>2</sub>	1	4	0
P <sub>3</sub>	0	0	0
P <sub>4</sub>	1	0	2

Requested Resources

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
	0	0	1

Free  
resource

(08 Marks)

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