

322456(22)

B. E. (Fourth Semester) Examination, April-May 2020

(New Scheme)

(CSE Branch)

OPERATING SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carries 2 marks. Attempt any two parts from (b), (c) and (d) which carry 7 marks each.

Unit-I

1. (a) What is interactive operating system? 2
- (b) Why operating system required on computer?
Describe the service provided by operating system. 7

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- (c) Differentiate between time sharing and real time operating system with any two real example. 7
- (d) Describe the distributed computing and parallel computing with suitable example. 7

Unit-II

2. (a) What is the use of process on processing of task? 2
- (b) Using Pre-emptive SJF scheduling draw the Gantt chart and calculate the average waiting time for the given data. 7

Process	Arrival Time	Burst Time
P_1	0	19
P_2	1	11
P_3	2	83
P_4	3	15

- (c) Explain Producer/Consumer problem with suitable diagram. 7
- (d) Write short notes on : 7
- (i) Process control block
- (ii) Interrupt processing

[3]

Unit-III

3. (a) Writing necessary conditions for deadlock. 2
- (b) Consider the following snapshot of a system :

	Allocation	Max	Available
	<i>ABCD</i>	<i>ABCD</i>	<i>ABCD</i>
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

Answer the following using Banker's algorithm :

- (i) What is the content of matrix needed? 7
- (ii) Is the system in a safe state? 7
- (c) Explain the deadlock recovery method. 7
- (d) Write short notes on : 7
- (i) Circular wait
- (ii) Safe and unsafe state

Unit-IV

4. (a) What is Resident Monitor? 2

[4.]

- (b) Explain multiprogramming with fixed partition with suitable example. 7
- (c) Consider the following page reference string :
4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5.
Assume 3 page frames and pure demand paging.
How many page faults would occur for :
(i) FIFO and (ii) optimal? 7
- (d) What is Thrashing? How does the system detect thrashing? 7

Unit-V

5. (a) Explain blocked I/O devices. 2
- (b) Explain the different types of buffering. 7
- (c) Write different types of file access methods with suitable diagram. 7
- (d) Write short notes on : 7
- (i) File sharing
- (ii) Virtual O.S.