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Roll No. :

322513(22)

B. E. (Fifth Semester) Examination, 2020

(Old Scheme)

(CSE, IT Engg. Branch)

OPERATING SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of every question is compulsory.

Attempt any two from (b), (c) and (d).

Unit-I

1. (a) What is the dual in operating system? 2
- (b) What do you mean by operating system? Explain layered approach to system design. 7

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- (c) What is kernel? Explain various services provide by kernel. 7
- (d) Explain the following : (any two) 7
- (i) Real time operating system
 - (ii) Time sharing operating system

Unit-II

2. (a) Draw process state transition diagram. 2
- (b) Describe dining philosopher problem with its possible solution. 7
- (c) For the processes listed below draw a chart illustrating their execution using (i) FCFS (ii) SJF (iii) SRTF. 7

Process	Arrival time	Processing Time
A	0.000	3
B	1.001	6
C	4.001	4
D	6.001	2

- (d) Propose a method for solving the reader writers problem without causing starvation. 7

Unit-III

3. (a) What is no preemption mechanism? 2
- (b) What is deadlok? What are the different method to handle and avoid this. 7
- (c) What are the difficulties that may arise when processes is rolled back a result of deadlock? 7
- (d) Consider following current allocation : 7

Process	Allocation			Max			Available		
	R ₁	R ₂	R ₃	R ₁	R ₂	R ₃	R ₁	R ₂	R ₃
P ₁	2	2	3	3	6	8	7	7	10
P ₂	2	0	3	4	6	3			
P ₃	1	2	4	3	4	4			

- (i) Is the current allocation state safe?
- (ii) Would the following request to be granted in the current state.

Process P₁ requested (1, 1, 0)

Process P₂ requested (0, 1, 0)

Unit-IV

4. (a) What is thrashing? 2
- (b) Give the difference between internal and external fragmentation with suitable example. 7
- (c) Define logical address and fisible physical address in operating system. 7
- (d) What is the cause of thrashing? How does the system detect thrashing? 7

Unit-V

5. (a) What is buffering? 2
- (b) What is file? Explain with their attribute. 7
- (c) Write short notes on : (any two) 7
- (i) Unix Operating System
 - (ii) Virtual Machining Operating System
 - (iii) File Sharing System
 - (iv) Operation System design issuvers
- (d) Explain contiguous, linked and indexed allocation method. 7