19/10/19

K. J. Somaiya College of Engineering, Mumbai-77
(Autonomous College Affiliated to University of Mumbai)
Semester: ODD 2019-20

Max. Marks: 30 **Duration: 1hr.15 min.**

Class: TY Semester: V

Branch: COMP

Term Test 2 Name of the Course: OS

Question No.		Max. Marks	CO Mapped	Bloom's Taxonomy Level
Q.1	Explain Semaphore. What operations can be performed on Semaphore? Consider Servers that can be designed to limit the number of open connections. For example, a server may wish to have only *N* socket connections at any point in time. As soon as *N* connections are made, the server will not accept another incoming connection until an existing connection is released. Explain how semaphores can be used by a server to limit the number of concurrent connections OR Illustrate the Dining Philosopher Problem with solution for solving it. Consider the version of the dining-philosophers problem in which the chopsticks are placed at the center of the table and any two of them can be used by a philosopher. Assume that requests for chopsticks are made one at a time. Describe and explain simple rule for determining whether a particular request can be satisfied without causing deadlock given the current allocation of chopsticks to philosophers.	10	CO4	Analyzing (IV)
Q.2	Given the state for Banker's Algorithm. 6 processes P0 through P5 4 resource types: Total: A (15 instances); B (6 instances) C (9 instances); D (10 instances) (P.T.O)	10	CO4	Applying (III)

	Given snapshot at time T0: a) Calculate the Available array. b) Calculate the need matrix. c) Is the current state in safe? If yes, show a safety sequence of processes. In addition, to the sequence show how the Available (Work array) changes as each process terminates. d) Given the request (3, 2,3,3) from process P5, should this request be granted? Why or why not?			
Q.3	Explain various I/O Buffering techniques with help of diagram.	10	CO5	Understand (II)

	Current Allocation				Maximum Allocation			
	A	B	C	D	A	B	C	D
P0	2	0	2	1	9	5	5	5
P1	0	1	1	1	2	2	3	3
P2	4	1	0	2	7	5	4	4
P3	1	0	0	1	3	3	3	2
P4	1	1	0	0	5	2	2	1
P5	1	0	1	1	4	4	4	4