ACAD-27 a)	Shri Ramdeobaba College of Engineering and Management, Nagpur -440013	Iss. No.: 01, Rev. No.: 00
Ref. Clause(s): 9.1		Date of Rev: 01/01/2018
Department: Computer Application	Semester : I Shift: I & II Course Code: MCT540 Course Name: Introduction to Operating Systems.	Page: 01/01
Programme: MCA	**Test : II**	Date of Exam: 13/05/2021
Max Marks: 15	Session: 2020-21 (Winter 2020)	Time: 1 Hours

Instructions: All questions are compulsory
Due credits will be given for neatness.

Q. No.	Question	Marks	COs Mapped	EO
Q. 1	Illustrate that TestAndSet( ) satisfy the mutual exclusion	02	CO2	L2
	OR			
	Differentiate between: (any one) i. Counting semaphore and binary semaphore ii. Deadlock and starvation iii. Safe and unsafe state		CO2	L4
Q. 2	Explain the synchronizing protocol of a classical readers/writers problem. Write a symbolic program code to implement the above protocol.	03	CO2	L2
Q.3	Consider the following snapshot of a system Process | Allocation | MAX | Available P1 0 0 1 2 | 0 0 1 2 | [1,5,2,0] P2 1 0 0 0 | 1 7 5 0 P3 1 3 5 4 | 2 3 5 6 P4 0 6 3 2 | 0 6 5 2 P5 0 0 1 4 | 0 6 5 6 i. What is content of need matrix? ii. Is the in safe state? Construct the safe sequence	**03**	CO2	L5
Q. 4	Consider the following page reference string 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6 Find out the number of page faults if there are 4 page frames, applying the LRU page replacement algorithm.	02	CO2	L3
	OR			
	Consider the following page reference string 10,11,104,170,73,309,185,245,246,434,458,364 Implement the LRU page replacement algorithm using stack.		CO2	L3
Q. 5	Consider the following segment table: Segment Base Length	02	CO2	L1

	1 100 50 2 200 150 3 450 600 4 1200 400 Identify the absolute address for each of the above logical addresses. a) 4,430 b) 3,550 c) 2,300 d) 1,30			
	OR			
	Explain (any two) 1.Thrashing 2.Beladys anomaly 3.Effective access time		CO2	L2
Q. 6	Explain the terms (any two) WORMS BUFFER OVERFLOW Denial of Service Attack	03	CO3	L2
	OR			
	Explain the copy mechanism used in access matrix.		CO3	L2