Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–II EXAMINATION – WINTER 2020

Subject Code:3620003 Date:06/02/2021

Subject Name:Operating Systems

Time:10.30 AM TO 12.30 PM Total Marks: 56

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Do as Directed. 1) Define Weak semaphore. 2) Define the term DMA. 3) Virtual memory space is always smaller than physical memory space.(True/False) 4) Segmentation avoids external memory fragmentation.(True/False) 5) Define race condition. 6) Every I/O device typically has a waiting queue associated with it.(True/False) 7) Define the term locality of reference.	**07**
	(b)	Discuss necessary conditions for a deadlock to occur. State general approach for avoiding deadlock.	**07**
Q.2	**(a)**	Discuss binary semaphore along with it's primitives.	**07**
	(b)	Explain the solution to the Bounded-Buffer Producer/Consumer Problem using a Monitor.	**07**
Q.3	**(a)**	Define the term secondary storage. Explain all the file allocation methods in detail.	**07**
	(b)	What is Processor Scheduling? Write a short note on Round Robin Algorithm in detail.	**07**
Q.4	**(a)**	Write down general approach of RAID.	**07**
	(b)	What is preemption? Explain various preemptive scheduling policies.	**07**
Q.5	**(a)**	What is Operating system? Explain in brief objectives and functions of OS.	**07**
	(b)	Define multithreading. Explain in brief KLT and ULT with its advantages and disadvantages	**07**
Q.6	**(a)**	Define process. Write a shortnote on PCB.	**07**
	(b)	Explain Buddy System with suitable example.	**07**
Q.7	**(a)**	Define memory partition. Explain fixed partitioning in detail.	**07**
	(b)	What is message passing? Explain interprocess communication synchronization.	**07**
Q.8	**(a)**	Define virtual memory. Compare LRU, FIFO and Clock page replacement policies with suitable example	**07**
	(b)	What is process? Explain the process state transition diagram with suspend state.	**07**

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