Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2173208 **Date:30/01/2021**

Subject Name:Distributed Computing

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)**	Compare the pros and cons of microkernel and monolithic kernel approach.	**03**
	(b)	Network system protocols are unsuitable for distributed	**04**
	(c)	Explain issues related to designing of distributed operating system.	**07**
Q.2	**(a)**	Can two computers on the internet have the same IP address? Justify	**03**
	(b)	What is process addressing? Explain commonly used methods for process addressing**.**	**04**
	(c)	What is non-idempotent routine? How such routine creates problem with message passing? Also explain its solution with example.	**07**
Q.3	**(a)**	What is acknowledgement message? Why is it always needed for reliable communication?	**03**
	(b)	Explain orphan call. How are orphan calls handled in the implementation of various call semantics?	**04**
	(c)	Explain FLIP protocol.	**07**
Q.4	**(a)**	What is the major difference between physical and logical clocks?	**03**
	(b)	Explain 'happened–before' relationship.	**04**
	(c)	What is the main difference between stateless and stateful servers? Which servers are used in distributed applications?	**07**
Q.5	**(a)**	List out issues in designing a thread package.	**03**
	(b)	Discuss the four necessary and sufficient conditions for a deadlock to occur. Give suitable examples to show that a deadlock cannot occur if any one of the four conditions is absent.	**04**
	(c)	Explain Client server Binding Mechanism.	**07**
Q.6	**(a)**	Compare active replication and primary backup methods.	**03**
	(b)	Explain the address space transfer mechanism for process migration in brief	**04**
	(c)	Explain Global averaging distributed algorithm for clock synchronization.	**07**

Q.7	**(a)**	Explain desirable features of good naming system in brief.	**03**
	(b)	Discuss the task assignment approach.	**04**
	(c)	Explain the following deadlock prevention techniques: (1) Collective requests (2) Ordered requests	**07**
Q.8	**(a)**	Can false sharing be completely eliminated?	**03**
	(b)	Write Short note on : DNS	**04**
	(c)	Explain the DSM system architecture. How does granularity affect DSM system performance?	**07**

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