

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3154502****Date:15-12-2023****Subject Name:Distributed Systems and Fundamentals of Block Chain Technology****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Define (1) Distributed System (2) Threads (3) Processes	03
(b) Define Virtualization. Explain various ways of virtualization	04
(c) Discuss different types of Distributed Systems	07
Q.2 (a) Explain identifiers in Naming	03
(b) Discuss Mounting in Structured Naming	04
(c) Explain Stream-Oriented Communication in details	07
OR	
(c) Explain Message-Oriented Communication in details	07
Q.3 (a) Discuss the bully election algorithm	03
(b) Explain smart contract in Ethereum	04
(c) Analyze implementations of logical clocks with suitable example	07
OR	
Q.3 (a) Discuss election algorithm using a ring	03
(b) Discuss Decentralization and Distribution in blockchain	04
(c) Analyze Centralized algorithm to implement critical sections and mutual exclusion in distributed systems.	07
Q.4 (a) Explain Firewalls for security in distributed systems	03
(b) Discuss potential threats and attacks on computer systems	04
(c) Explain secure group communications	07
OR	
Q.4 (a) Define denial of services with suitable examples	03
(b) Discuss design issues in building secure distributed systems	04
(c) Explain authorization management as a part of security in distributed systems	07
Q.5 (a) Explain various components of blockchain	03
(b) Explain Consensus algorithms in blockchain	04
(c) Compare different types of blockchains	07
OR	
Q.5 (a) Discuss different types of Cryptocurrencies in the market	03
(b) Explain Hyper ledger platform in blockchain	04
(c) Analyze key characteristics of Consortium blockchain	07
