Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171618   **Date:06/06/2022**
Subject Name:Blockchain
Time:02:30 PM TO 05:00 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)**	How do smart contracts reduce the transaction cost?	**03**
	(b)	Discuss pros and cons (i) Blockchain technology works on the principle of ledger data distributed to all nodes that are non hierarchical with no single central control. (ii) One cannot modify data or transactions once they are recorded in the Blockchain database.	**04**
	(c)	How do different cryptocurrency wallets differ? Explain.	**07**
Q.2	**(a)**	What is crypto mining?	**03**
	(b)	Distinguish how the validators are chosen for Proof of Stake and Proof of Authority.	**04**
	(c)	Explain the structure of Blockchain eco system.	**07**
		OR	
	(c)	Describe the key characteristics of public blockchain. In which situation permissionless blockchain can be used?	**07**
Q.3	**(a)**	What is merkle tree and merkle root?	**03**
	(b)	How do smart contract work?	**04**
	(c)	Describe the distinct characteristics of Cryptocurrency that set it apart from traditional currency.	**07**
		OR	
Q.3	**(a)**	Describe the four types of transactions in Ethereum.	**03**
	(b)	Describe the difference between Full Node and Light Node.	**04**
	(c)	Explain the various hyperledger fabric tools in detail.	**07**
Q.4	**(a)**	Blockchain-as-a-Service(BaaS) is a concept similar to Software-as-a-Service(SaaS). Justify.	**03**
	(b)	What is hash in blockchain? What are the key characteristics of Hash?	**04**
	(c)	Describe the key features of private Blockchain.	**07**
		OR	
Q.4	**(a)**	Describe the concept of double spending.	**03**
	(b)	Differentiate between blockchain and bitcoin.	**04**
	(c)	Describe the key features of consortium Blockchain	**07**
Q.5	**(a)**	For "public rating engine for movies" – how this can be implemented with Blockchain?	**03**
	(b)	Consider the E-commerce website, which type of permissions are to be given by e-commerce website for the private blockchain?	**04**

(c) Write about potential applications of Blockchain that could cut across any industry and revolutionize the way of business. **07**

OR

Q.5 **(a)** In the Blockchain, cryptography replaces the need for third parties to ensure trust. Discuss advantages and disadvantages. **03**

(b) Explain state machine with three states. Explain with diagram. **04**

(c) Describe proof of work consensus algorithm and discuss disadvantages of proof of work consensus mechanism. **07**

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