1/21

1511E1269

Candidate's Seat No : _____

Int. M.Sc. (DS) Sem.-9 Examination

CC-503

Block Chain Technology

Time : 2-30 Hours] **November-2025** **[Max. Marks : 70**

Instructions: All questions are compulsory. Use of non-programmable scientific calculator is allowed.

Q.1	**(a)**	What is Mining in Blockchain? Explain the various steps involved in the mining process.	**(07)**
	(b)	List and explain different properties of hashing algorithms.	**(07)**
		OR	
	(a)	What is Blockchain? How it differs from the Database technology. Discuss the role of SHA256 algorithm in Blockchain technology.	**(07)**
	(b)	Discuss different fields of Block in Blockchain technology in brief.	**(07)**
Q.2	**(a)**	Discuss the role of the TimeStamp field in the mining process of Blockchain technology.	**(07)**
	(b)	Explain the term Mempool in the context of Blockchain technology.	**(07)**
		OR	
	(a)	What is PoS? How does it differ from the PoW algorithm? Also, explain why the PoS algorithm is better than the PoW algorithm?	**(07)**
	(b)	What is Bitcoin? Discuss the monetary policy of Bitcoin.	**(07)**
Q.3	**(a)**	List the problems that might occur if we allow programming in the Blockchain. How are all those problems solved in Ethereum?	**(07)**
	(b)	What is Forking in Blockchain? Explain the reason why a hard-fork occurs in the Blockchain of Bitcoin.	**(07)**
		OR	
	(a)	Discuss the Ethereum Blockchain and compare it with the Bitcoin blockchain.	**(07)**
	(b)	List and explain different types of nodes available in Ethereum.	**(07)**
Q.4	**(a)**	Discuss the compilation process of a Solidity program.	**(07)**
	(b)	Discuss setter and getter functions in the Solidity programming language.	**(07)**
		OR	
	(a)	Discuss the program structure of a smart contract written in the Solidity language. Explain it by writing a small program.	**(07)**
	(b)	What is a constructor? Explain it with an example.	**(07)**

Q.5 **Define the following Terms (Any SEVEN):** **(14)**

(1) State variables
(2) Remix
(3) ABI
(4) Timestamp
(5) Smart Contract
(6) EVM
(7) Nonce
(8) View
(9) Immutable
(10) ICOs
(11) Public Blockchain
(12) Metamask

**** ****