Duration: 3 hours   **[Max Marks: 80]**

N.B.: (1) Question No 1 is Compulsory.
       (2) Attempt any three questions out of the remaining five.
       (3) All questions carry equal marks.
       (4) Assume suitable data, if required and state it clearly.

			Marks
Q1.		**Attempt any four**	
	a.	Explain Blockchain CAP theorem with relationship diagram of CAP.	**5**
	b.	Discuss Incentive based Engineering in Bitcoin.	**5**
	c.	Explain Hyperledger Fabric Channels.	**5**
	d.	List the key characteristics of ICO.	**5**
	e.	Enumerate the different advantages of Blockchain with Cybersecurity.	**5**
Q2.	a.	Explain different node types and their roles in bitcoin. What is the Extended bitcoin network?	**10**
	b.	Describe the Architecture of Hyperledger Fabric Blockchain.	**10**
Q3.	a.	How to create an account on Metamask (Ethereum Wallet). List and explain different testnets for deployments.	**10**
	b	Discuss Bitcoin Mining steps to validate the block. What is the difficulty level and how does it calculate in terms of bitcoin?	**10**
Q4	a.	What is consensus? List and explain permissioned and permissionless consensus algorithms.	**10**
	b.	Define Blockchain Technology. Compare different types of blockchain systems.	**10**
Q5	a.	Differentiate between ERC20 & ERC721. Demonstrate NFT with small code.	**10**
	b.	Explain different components of Ethereum in detail.	**10**
Q6	a.	Explain Wallet Technologies in Bitcoin	**10**
	b.	Discuss Structure of a Block, Genesis Block, Linking Blocks in the Blockchain, Merkle Tree.	**10**

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