Blockchain Question Bank

Module 1		Marks
1	Explain the design of distributed systems with respect to Byzantine node.	6
2	Explain the importance of accountability and anonymity in e-cash system	4
3	Define Blockchain and elaborate on the key terms.	6
4	Illustrate the network view of the blockchain	6
5	Illustrate the generic structure of a block and explain the importance of each field	8
6	Illustrate the generic structure of a blockchain and explain the importance of each field	8
7	Explain the relationship between transactions and blocks	8
8	Explain in detail the benefits and limitations of blockchain	8
9	Interpret the features of blockchain in detail	6
10	Categorize blockchains based on their evolution and usage.	8
11	Define consensus. Explain the importance of consensus in Blockchain. Also, elaborate on the requirements to be met for consensus mechanism.	8
12	List the notable algorithms used in blockchains	8
13	Explain the importance of decentralization in blockchain.	6
14	Illustrate the working of decentralized ecosystem.	6
15	Give the Technical and Layman's definition for Blockchain and explain its key features	6
16	What is electronic cash? Demonstrate the problem of Double Spending in digital cash.	8
17	Explicate the working of blockchain describing how it accumulates blocks	10
18	Explain the different types of Blockchain	12
19	Write a note of different consensus algorithms available in blockchain	10
20	Explain the different platforms for decentalization	6
21	Define Cryptography. Explain the generic model for encryption and decryption.	6
22	Briefly explain the primitives and services of cryptography	8
23	Define Symmetric Cryptography. Explain the types of symmetric ciphers with examples	12
24	Discuss the different techniques for Block encryption mode	10

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	Module 2	Marks
1	Demonstrate the process of payment using Bitcoin network from one user to another from a user's point of view	10
2	Define Bitcoin. List the necessary elements of Bitcoin network	8
3	Determine the different type of keys necessary for transactions using Bitcoins	8
4	Interpret Mining in a Blockchain Network. Explain with a flowchart the steps involved in mining process	10
5	Elucidate the address generation process in Bitcoin network	6
6	Discuss on digital keys generated and used in Bitcoin network	6
7	Illustrate the high level data structure of transaction in Bitcoins.	10
8	Classify the different types of wallets used in Bitcoins	10
9	Explicate the transaction verification process performed by Bitcoin nodes	10
10	Explain in detail the steps involved during transaction life cycle.	10
11	Categorize the standard transaction types carried out Bitcoins	8
12	Illustrate the importance of coinbase transactions	5
13	Summarize the tasks carried out by a miner	8
14	Interpret the importance of SegWit transactions	6
15	Explain how improvement protocols on Bitcoins are proposed	8
16	Give the high level overview of the Bitcoin Blockchain	10

	Module 3	Marks
1	Define smart contract. Analyze the differences between a smart contracts and a traditional contract	12
2	What are Richardian contracts? Compare and Contrast the characteristics and benefits of Richardian contracts and Smart Contracts	12
3	Illustrate the use of smart contract templates	6
4	Appraise the importance of Oracles with respect to smart contracts	6
5	List and explain the properties of Richardian contracts	8
6	Demonstrate the generic model of an Oracle and smart Contract ecosystem	10
7	Define smart contract. List and explain the properties of smart contracts.	6
8	Explain the properties of Decentralized Autonomous Organization	8

	Module 4	Marks
1	Illustrate the reasons for considering Ethereum as a state transition function	8
2	Determine the steps involved during a transaction using Ethereum blockchain	8
3	Categorize the Ethereum network	6
4	Explain the importance of Remote Procedure Call interface in Ethereum	6
5	Illustrate the different components of the Ethereum ecosystem	8
6	Classify the types of accounts existing in Ethereum	8
7	List and explain the different fields used for Ethereum transactions	8
8	Define a message. List and explain the components of a message in Ethereum blockchain	8
9	Explain how state storage is carried out in the Ethereum blockchain	8
10	Illustrate the working of Ethereum Virtual Machine	8
11	Explain the importance of following terms with respect to Ethereum blockchain a. Machine state b. iterator function c. smart contracts	8
12	List and explain about native contracts with respective address definition	8

	Module 5	Marks
1	Illustrate with steps the procedure involved in installation of solc on Linux Operating System	6
2	Interpret the properties of the following Ethereum tools: i. Ganache ii. MetaMask iii. Truffle	8
3	Explain in detail about the different data types used in Solidity Language	8
4	Illustrate the reference architecture of Hyperledger Fabric with a suitable diagram	8
5	Explain the role of membership services in Hyperledger Fabric	6
6	Explain in detail about distributed ledger with respect to Hyperledger Fabric	8
7	Interpret the application of Blockchain in IoT with respect to Blockchain based IoT model	8
8	List and explain at least three applications of blockchain apart from being used as a currency	8
9	Investigate the various types of IDEs available for Solidity development	8