

## Question Bank (Unit wise)

A.Y. 2025

Semester : VI

Class: BE

Subject Name: Blockchain Technology(CS6122)

Q-No	CO	Unit	Questions	Marks
<b>UNIT – I Mathematical Foundation of Blockchain</b>				
1	1	1	What is Cryptography? What is the basic Purpose of it?	4
2	1	1	What is Different security services thar are offered by Cryptography?	4
3	1	1	Explain general cryptographic model with suitable diagram	4
4	1	1	Demonstrate symmetric key cryptography.What are pros and cons of it	6
5	1	1	Demonstrate asymmetric key cryptography. What are pros and cons of it	6
6	1	1	Compare symmetric and asymmetric key cryptography	4
7	1	1	Explain Stream Cipher and block Cipher	4
8	1	1	Write a short note on elliptic curve	4
9	1	1	Explain the concept of public and private key	4
10	1	1	RSA is not the best cryptography method for nesr future why?	4
11	1	1	Describe the steps to generate public and private keys in RSA?	4
12	1	1	How encryption and decryption is carried out in RSA?	4
13	1	1	Write a short note on elliptic curve cryptography	4
14	1	1	What are the advantages of ECC over public key algorith?	4
15			Explain concept of point addition in ECC	4
16	1	1	Explain concept of point doubling in ECC	4
17	1	1	How to determine public and private keys in ECC	4

18	1	1	State and explain Hash function?What is collision hash	4
19	1	1	Enlist the features of Cryptographic hash function?Explain any two	6
20	1	1	Demonstrate pre image and second image resistance with example	4
21	1	1	Explain Avalanche effect of hash function	4
22	1	1	Explain the working of SHA-256 algorithm	4
23	1	1	How the digital signing and verification is carried out with RSA digital Signature algorithm?	6
24	1	1	Explain two approaches to using digital signature with encryption	4
25	1	1	What are Merkle trees? Explain the structure of Merkle tree	6

### **UNIT – II Feature Engineering**

1	1	2	Define Blockchain What are important feature of it	6
2	1	2	Explain the evolution of blockchain with timeline	4
3	1	2	Explain the emergence of Bitcoin	4
4	1	2	Brief about Ethereum development	4
5	1	2	What are different phases of blockchain evaluation	6
6	1	2	Discuss about major blockchain platform evolved during phases 3 of blockchain	6
7	1	2	Differentiate between centralised and decentralized system	4
8	1	2	Explain the concept of centralised system with its pros and cons	6
9	1	2	Explain the concept of decentralised system with its pros and cons	6
10	1	2	Explain the concept of distributed system with its pros and cons	6
11	1	2	Compare centralised vs Decentralised vs Distributed	6
12	1	2	Describe the blockchain mechanism in brief	4
13	1	2	Draw and explain the structure of block	4

14	1	2	State and explain the constituent block header	4
15	1	2	What is Genesis block? write down importance of genesis block	6
16	1	2	List the methods to identify block uniquely	6
17	1	2	Elaborate the chaining process of blocks	6
18	1	2	If someone tries to hack block no 5 in chain of 15 blocks. What will happen and why?	6
19	1	2	Explain Layered Architecture of blockchain	6
20	1	2	List and explain various actors in blockchain technology solution	6
21	1	2	State and explain different terms related to blockchain	4
22	1	2	Elaborate the importance of blockchain with respective safety	4
23	1	2	How decentralization is achieved through blockchain technology	4
24	1	2	Which feature makes blockchain important over traditional system	4
25	1	2	What are the limitations of blockchain technology	6
26	1	2	Blockchain needs high energy consumption. How?	4
27	1	2	What are the interoperability and scalability issues of blockchain?	4
28	1	2	Comment on various hurdles in adoption of blockchain technology by industry	6
29	1	2	What can be a problem of blockchain technology adoption by the finance sector?	4
30	1	2	What do you think, which limitations of blockchain are major hurdles in its adoption?	6

### **UNIT - III Blockchain Platforms and Consensus in Blockchain**

1	3	3	Differentiate between different types of blockchain	4
2	3	3	Explain Bitcoin and its working. State how the value of Bitcoin is decided.	6
3	3	3	What is Bitcoin mining? Explain the functionality of miners.	6
4	3	3	Explain Ethereum and DApp.	4

5	3	3	What is hyperledger and hyperledger fabric ?	4
6	3	3	What are the objectives of Blockchain Consensus Mechanism?	5
7	3	3	Five different types of Consensus algorithm.	5
8	3	3	Explain the Proof of work consensus algorithms.	5
9	3	3	what is proof of stake consensus algorithm ?	5
10	3	3	Explain the proof of Elapsed time consensus algorithm	5
11	3	3	Explain the Proof of activity consensus algorithm.	5
12	3	3	Explain the proof of burn consensus algorithm .	5
13	3	3	what is BFT .	4
14	3	3	Explain pBFT.its Advantages and Disadvantages .	6
15	3	3	Differentiate between various consensus algorithm.	6
16	3	3	How is Corda.Different compared to public blockchain?	6
17	3	3	What is the Benefits of using the Corda permissioned blockchian ?	5
18	3	3	what are the features of Corda blockchain? What makes it so Different ?	5
19	3	3	Explain is DeFi? Explain in brief .	5
20	3	3	what are CorDapps?	4
21	3	3	Differentiate between Public and private Blockchain .	4
22	3	3	what is IoT? how does it relate to IOTA?	6
23	3	3	Compare blockchain with IOTA tangle.	5
24	3	3	IOTA is scalable. Explain .	5
25	3	3	no minors are involved in IOTA network.why?	4
26	3	3	Enlist some usecases of IOTA .	5

27	3	3	explain directed Acyclic graph (DAG)	4
28	3	3	IOTA protocol (known as tangle)is DLT ,Explain .	4
29	3	3	what is hyperledger technology ?	4
30	3	3	what are the aims of hyperledger technology ?	4
31	3	3	what are the projects under the Hyperledger umbrella?	4
32	3	3	What is Hyperledger Fabric?	4
33	3	3	Compare Bitcoin with Ethereum.	5

#### **UNIT IV Cryptocurrency – Bitcoin, and Token**

1	4	4	Write a short notes on history of crypto currency.	5
2	4	4	State advantages and disadvantages of fiat Currency.	4
3	4	4	Explain Fiat currency and how it works .	5
4	4	4	Give the features of centralized Finance	4
5	4	4	With diagram explain the difference between centralise and decentralise finance.	6
6	4	4	What is block?	2
7	4	4	Give the difference between Digital currency and cryptocurrency.	4
8	4	4	What is metamak?	2
9	4	4	What is coinbase give the features of it?	4
10	4	4	Explain the need of Crypto exchange.	4
11	4	4	Give the example of any Crypto exchange.	4
12	4	4	What is relation between Bitcoin and cryptocurrency?	5
13	4	4	What is bitcoin explain the working of bitcoin?	4
14	4	4	Explain Crypto wallets give the list of different wallets available.	5

15	4	4	Give the difference between cold wallet and hot wallet.	4
16	4	4	What is full node and light node?	4
17	4	4	With the diagram explain transaction life cycle of Bitcoin.	6
18	4	4	With the diagram explain Bitcoin architecture.	6
19	4	4	What is cryptocurrency give the different examples of cryptocurrency	5
20	4	4	Give the pros and cons of cryptocurrency.	4
21	4	4	Which are the different types of cryptocurrencies are available?	4
22	4	4	What is NFT?	4
23	4	4	Give the difference between NFT and fungible token.	5
24	4	4	What is stable coin?	2
25	4	4	Give the features of any two cryptocins.	4
26	4	4	What is fungible token?	4
27	4	4	Give the difference between Flat currency and cryptocurrency.	5
28	4	4	What is the difference between IPO and ICO?	5
29	4	4	Explain the concept defi.	4

### **UNIT – V Blockchain Ethereum Platform using Solidity**

1	5	5	What is Ethereum? Give it's comparison with Bitcoin.	5
2	5	5	Explain Etherium and the Birth of Ethereum.	4
3	5	5	What are Ethereum's Four Stages of Development?	4
4	5	5	Explain Ethereum as a General purpose Blockchain.	4
5	5	5	State and explain the various components of Ethereum.	5
6	5	5	Explain how Ethereum is a Turing-complete system?	4

7	5	5	How does Ethereum constrain the resources used by a smart contract?	4
8	5	5	What are DApps?	4
9	5	5	State and explain the Ether Currency Units.	4
10	5	5	What are keys and addresses?	5
11	5	5	Explain in brief the Types of Accounts.	5
12	5	5	State and explain Ethereum nodes and it's types.	4
13	5	5	Write a note on transactions. Give it's characteristics.	6
14	5	5	4 Explain the various types of Ethereum Networks.	6
15	5	5	Define (1) public networks (ii) Ethereum Mainnet (ii) Ehtereum Testrets.	6
16	5	5	Give the advantages and disadvantages of public testrets.	5
17	5	5	Explain in brief the Private Networks.	4
18	5	5	What is Ethereum Virtual Machine: EVM.	4
19	5	5	Explain the Ethereum State Transition Function and the EVM Instructions.	4
20	5	5	Explain Smart Contracts and it's types.	4
21	5	5	What is meant by Life Cycle of a Smart Contracts	6
22	5	5	How to implement and deploy smart contracts?	5
23	5	5	Explain Swarm.	4
<b>UNIT - VI Blockchain Case Studies</b>				
1	6	6	Explain in brief about layered view of blockchain.	4
2	6	6	How blockchain made impact on banking sector?	4
3	6	6	What are the cryptocurrencies used in the banking sector?	5
4	6	6	State Pros and Cons of Blockchain in the banking sector. 0.5	5

5	6	6	List the applications of blockchain Technology in different areas.	4
6	6	6	Explain how Blockchain is useful for retailers.	5
7	6	6	Explain the features of public blockchain	5
8	6	6	Explain the use of blockchain technology in the government sector. Which are the different blockchain based applications available/proposed for it?	6
9	6	6	How can blockchain Technology be used for Voting systems?	5
10	6	6	What is central bank digital currency	5
11	6	6	Which are the different stakeholders benefited for GST implementation on blockchain?	4
12	6	6	How blockchain Technology can be useful for storing electronic health record? give any example of it.	6
13	6	6	Write a short note on drug and medical equipment supply chains using block Chain	6
14	6	6	Explain how blockchain and Technology can be useful for pharmaceutical companies.	6
15	6	6	Explain how blockchain and IOT can work together.	5
16	6	6	Write a note on Helium	4
17	6	6	Explain the need of blockchain for Digital media	4
18	6	6	Explain the use of blockchain technology in music industry.	4
19	6	6	With the help of a diagram explain blockchain for agriculture supply chain	5
20	6	6	What is crowdfunding and how Blockchain Technology can be used for it?	5
21	6	6	Give the difference between traditional KYC system and blockchain base KYC system	4
22	6	6	Explain in detail how cyber hack can be reduced for Digital identity using blockchain.	4
23	6	6	List the prominent blockchain application. Explain in detail any one with the architecture	5
24	6	6	Explain how blockchain Technology can be used for Cross border payment. Q	5
25	6	6	How Blockchain Technology can be used for different registries?	5
26	6	6	Give the difference between trade finance without blockchain and with blockchain.	4



27	6	6	Explain smart agriculture with the help of Blockchain and technology	4
28	6	6	Describe the use of blockchain technology in energy and utilities.	4
29	6	6	State and explain different aspect of Healthcare where Blockchain Technology can be used.	4
30	6	6	Write a short note on use of blockchain technology in government sector	5
31	6	6	What are the important challenges in adopting blockchain technology in Healthcare domain	5
32	6	6	Write a short note on use of blockchain technology in medical sector	5
33	6	6	Write a short note on blockchain technology in finance sector.	5
34	6	6	With the help of a diagram explain how blockchain can be used for any supply chain application	6

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