



RV College of Engineering®

Mysore Road, RV Vidyaniketan Post,
Bengaluru - 560059, Karnataka, India

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date	24 June, 2024	Maximum Marks	50
Course Code	CS124ATE, Elements of Blockchain Technology	Duration	90 Min
Sem	II	CIE - II	

SL No.	Test Questions	M	BT	CO
1.	What are the key differences between Ethereum and Bitcoin? Discuss their purposes and main features.	10	2	1
2.	Can you explain what a smart contract is, provide three examples of how they can be used, and discuss the advantages of automating transactions through smart contracts?	10	3	4
3.	Explain the following concepts: i) Network Tokens ii) Utility Tokens iii) Security Tokens	10 (3+3+4)	2	3
4.	Define and distinguish between a hard and soft fork. How do they impact the consensus and overall stability of a blockchain network? What are some notable examples of soft forks and hard forks in the history of major cryptocurrencies, and what were the reasons behind these forks?	10	3	2
5.	How does the EVM ensure the execution of smart contracts across the Ethereum network? Discuss the importance of determinism in this context.	10	3	3

Course Outcomes: After completing the course, the students will be able to:

CO 1	Apply the knowledge of Blockchain in some of the Industrial Use Cases
CO 2	Analyse the working of some of the Blockchain solutions in Business Use Cases
CO 3	Use some of the modern tools of Blockchain, such as Ethereum to solve real world problems
CO 4	Appreciate ethical implications of using Blockchain technologies
CO 5	Assess the impact and importance of the Blockchain technologies on social security

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	B1	B2	B3	B4	B5	B6
	Test	Max Marks	10	10	20	10	-	20	30	-	-	-



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date	3 rd July, 2024	Maximum Marks	60
Course Code	CS124ATE, Elements of Blockchain Technology	Duration	110 Min
Sem	II	CIE – III (Improvement Test)	

Sl. No.	Part-A Quiz Questions	M	BT	CO
1. ✓	In Ethereum, a _____ is a high-level language that compiles to EVM bytecode and is used for writing smart contracts.	1	1	1
2.	The set of standards and guidelines for creating smart contracts and DApps on Ethereum is encapsulated in the _____.	1	1	3
3. ✓	The upcoming Ethereum upgrade that aims to improve scalability by partitioning the blockchain into smaller pieces is called _____.	1	2	2
4.	The algorithm used by Ethereum to compute block hashes and validate blocks in its original Proof of Work (PoW) system is called _____.	1	1	3
5.	Ethereum's transition to Proof of Stake is often referred to as "The _____".	1	2	2
6.	Ethereum Improvement Proposals, used to propose changes to the network, are abbreviated as _____.	1	2	4
7.	The _____ token standard is widely used for creating fungible tokens on the Ethereum network.	1	2	1
8.	The _____ token standard is used for creating non-fungible tokens (NFTs) on the Ethereum network.	1	2	3
9.	The process of validating transactions and adding them to the blockchain is known as _____.	1	2	1
10.	The smallest unit of Ether is called a _____.	1	1	1

SL No.	Part B - Test Questions	M	BT	CO
1. ✓	i) How is Blockchain used for Identity Management? Discuss with a figure the identity use-case for corporation. ii) Explain how Blockchain is used in industry asset-tracking.	5+5	2	2
2.	Explain what a smart contract is, provide three examples of how they can be used, and discuss the advantages of automating transactions through smart contracts?	10	3	4
3.	Explain the following concepts: i) Network Tokens ii) Utility Tokens iii) Security Tokens	10 (3+3+4)	2	3
4.	Briefly explain how Blockchain is used in the areas mentioned for Business: i) Finance ii) Supply Chain Management iii) Accounting iv) Marketing and sales	10	3	2
5.	i) How can Blockchain be integrated with IoT? ii) How is Blockchain used in healthcare industry?	5+5	3	2

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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution Affiliated to VTU)

I / II Semester B. E. Regular / Supplementary Examinations Aug-2024

ELEMENTS OF BLOCKCHAIN TECHNOLOGY (ELECTIVE)

Maximum Marks: 100

Time: 03 Hours

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2 is compulsory. Answer any one full question from 3 and 4, 5 and 6, 7 and 8, 9 and 10.

PART-A

M BT CO

1	1.1	Differentiate between Decentralized and Centralized database.	02	2	1
	1.2	Blockchain technology enables storing a history of transactions that is "agreed-upon and append-only." Justify this concept.	02	3	2
	1.3	Define Dapp with an example.	02	1	3
	1.4	Mention any two key advantages of Wallet.	02	2	3
	1.5	Compare cryptocurrencies with crypto-commodities.	02	3	2
	1.6	_____ refers to the entire open-source platform for developing distributed applications, while _____ is the actual digital token that is used to fuel the platform. (Fill in the blanks with appropriate terms.)	02	1	2
	1.7	Outline steps involved in KYC use case for banking that utilizes blockchain for KYC approval process.	02	3	1
	1.8	What is edge computing?	02	2	5
	1.9	The first block in the blockchain is called as _____. Its block height is _____.	02	1	5
	1.10	Contrast Bitcoin and Ethereum with respect to block generation speed and Quantity of tokens supported.	02	2	5

PART-B

a	With respect to Blockchain technology explain the following:			
	i) Types of Blockchain			
	ii) Challenges for adoption of Blockchain	10	3	5
b	Two key features of Blockchain include Security and Resilience. Briefly describe the same.	06	2	5
a	Compare and contrast the Internet and Blockchain technology Stacks. Between two communicating parties A and B what does the consensus rule define in case of Bitcoin?	10	3	4
b	What is a mining pool? Explain with two pool examples.	06	2	4
OR				
a	Explain the concept of Blockchain as a Service. Why is it useful for organizations to implement it? Discuss its upsides and downsides.	10	3	2
b	What is IPFS? Explain what happens when a file is added to IPFS.	06	2	2

5	a	Describe the importance of network tokens and security tokens with one example for each. Enumerate the potential benefits of bitcoin network.	10	2	4
	b	Define decentralized crypto exchange. Detail the idea behind OTC crypto exchange.	06	2	4
OR					
6	a	Explain how bitcoin has emerged using fork. Using a neat diagram describe hard fork and soft fork.	10	2	3
	b	List and explain any four metrics used to value cryptocurrencies.	06	2	3
OR					
7	a	What is a Smart contract? Explain the following with respect to Smart contract: i) Working of Smart Contract ii) Attributes of Smart Contract	10	2	3
	b	Highlight the two research projects of Ethereum developed as a part of Casper.	06	3	3
OR					
8	a	Outline the possibility of using DAOs to automate businesses. How could a DAO help you buy/sell your used car?	10	3	1
	b	Differentiate On-chain Vs Off-chain Vs Side-chain governance.	06	2	1
9	a	Illustrate and explain how a "health token" could be used to solve the problem of keeping patients on track with their doctor prescribed treatment or fitness regimes.	08	3	2
	b	Comment on the different cross industry asset tracking use cases. How can blockchain be used to accomplish it.	08	3	2
OR					
10		Write short notes on the following: a) Blockchain for IoT b) Blockchain for Walmart Food Supply chain c) MIT credential verification via Blockchain d) POWR for Energy using Blockchain	16	3	2