Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN

[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]

Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 130003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024

Seventh Semester

Computer Science and Technology

U19CT717 – BLOCKCHAIN METHODOLOGY

(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define Byzantine General Problem.	2	K1	CO1
2.	What Is a Distributed Hash Table?	2	K1	CO1
3.	Write a non-technical explanation of blockchain by analogy.	2	K2	CO2
4.	What is Consensus Protocol?	2	K1	CO2
5.	Write down the differences between public and private blockchain.	2	K2	CO3
6.	What are Soft & Hard Fork?	2	K1	CO3
7.	Write down the differences between POW and POS.	2	K2	CO4
8.	Write a short note on 51% attack.	2	K1	CO4
9.	Define GHOST.	2	K1	CO5
10.	Define smart contract.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	What is mean by Turing completeness in blockchain technology? Write its implications for smart contracts, what role does the Ethereum Virtual Machine (EVM) play in Ethereum's Turing completeness? Is the Bitcoin blockchain Turing-complete?	13	K2	CO1

		(OR)			
	b)	What is ASIC and discuss its role in Blockchain Technology.	13	K1	CO1
12.	a)	Explain in detail about Blockchain-Based Applications .	13	K1	CO2
		(OR)			
	b)	Write in detail about Blockchain in software architecture.	13	K2	CO2
13.	a)	Discuss Merkle Patricia Trie with examples in detail.	13	K2	CO3
		(OR)			
	b)	Compare and contrast Anonymity and pseudonymity and write in detail about mining process.	13	K1	CO3
14.	a)	What is the need for Consensus Algorithms in Blockchain and explain Proof-of-Work (PoW) and Proof-of-Burn (PoB) algorithms in detail?	13	K1	CO4
		(OR)			
	b)	Explain the terms Gas Limit, Transactions and Fee, in the context of different types of blockchain.	13	K3	CO4
15.	a)	Write down differences between Offchain, Sidechain, State Channel with proper scenario.	13	K3	CO5
		(OR)			
	b)	What is Bitcoin difficulty? How often does the network difficulty change? How is difficulty calculated? What is the difference between bdiff and pdiff?	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16.	a)		Blockchain-based framework for conducting and evaluating academic tests in a peer-to-peer manner with the auto-generation of certificates upon successful completion of the examination. Illustrate how a self-sustained ecosystem can be developed on the top of the blockchain for a fair evaluation without the need for the central trusted entity to obtain degrees or certificates that prove one's ability in the subject.	15	K3	CO4
			(OR)			
	b)	i.	Explain how blockchain technology and the use of cryptocurrencies differ from the current banking system.	8	K2	CO5
		ii.	Outline the process that takes place when a customer purchases an item using cryptocurrency.	7	K1	CO5