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: 6005

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Sixth Semester
Information Technology
U19ITV54 – BLOCK CHAIN TECHNOLOGY
(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.	How does Bitcoin achieve transparency?	2	K2	CO1
2.	Define smart contract.	2	K1	CO1
3.	What is a Bitcoin?	2	K1	CO2
4.	Compare and contrast cryptocurrencies (e.g., Bitcoin) with digital currencies (i.e., online banking).	2	K2	CO2
5.	Illustrate Bitcoin transaction with an example.	2	K2	CO3
6.	How Bitcoin transactions are aggregated into blocks?	2	K1	CO3
7.	How does a payee verify that the payer has a Bitcoin in the first place, and he/she transferred that Bitcoin?	2	K2	CO4
8.	Explain network discovery in Bitcoin.	2	K2	CO4
9.	Explain Transaction aggregation process.	2	K2	CO5
10.	Explain proof-of-work?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain decentralization. Outline the process of bitcoin achieving decentralization.	3+10	K2	CO1

		(OR)			
	b)	Define tamper-resistance. Show the process of bitcoin achieving tamper-resistance.	3+10	K2	CO1
12.	a)	Model the process that transfers a Bitcoin from node A to node B.	13	K3	CO2
		(OR)			
	b)	Explain the process in a step-by-step manner for creating a new Bitcoin.	13	K2	CO2
13.	a)	Analyze the usage of digital signature in Bitcoin Transactions with a use case.	13	K4	CO3
		(OR)			
	b)	Examine and infer the use of hash function in Bitcoin Transactions with a case study.	13	K4	CO3
14.	a)	Recall different types of nodes required by the Bitcoin network and its respective roles.	13	K1	CO4
		(OR)			
	b)	With suitable example, show the working of Bloom filters.	13	K2	CO4
15.	a)	Explain with example, how nodes in Bitcoin achieve consensus?	13	K3	CO5
		(OR)			
	b)	Explain with example, how nodes in Bitcoin validate a transaction? Assume proper input and output for the transaction.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Blockchain uses a peer-to-peer architecture. Give an example of any client-server application, and convert it to the peer-to-peer application. Justify the design choices required for creating an peer-to-peer application.	5+10	K6	CO1
		(OR)			
	b)	Explain and evaluate the algorithm that produces the private and public Bitcoin addresses. Provide a suitable example.	10+5	K5	CO3