

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S4 (R) Examinations April 2026 (2024 Scheme)



Course Code: PECCT412

Course Name: INTRODUCTION TO BLOCK-CHAIN TECHNOLOGIES

Max. Marks: 60

Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Distinguish between symmetric and asymmetric cryptography.	CO1	(3)
2	List the Benefits and challenges of blockchain.	CO1	(3)
3	Differences between blockchain vs shared databases.	CO2	(3)
4	What is the role of mining in blockchain?	CO2	(3)
5	Explain any three main features of the EOS.IO blockchain platform.	CO3	(3)
6	Describe how Bitcoin nodes validate transactions.	CO3	(3)
7	Explain any three important properties of a smart contract.	CO4	(3)
8	Explain the differences between software oracles and hardware oracles.	CO4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

9	a) Encrypt the message "blockchain" using the additive cipher with key =20.	CO1	(3)
	b) Explain the types of blockchain.	CO1	(3)
	c) List the applications of blockchain in E-Governance.	CO1	(3)
10	a) What are Merkle trees? How can Merkle tree increase the security of blockchain?	CO1	(2)
	b) Explain the general scheme for creating blocks and describe the relationship between transactions and blocks.	CO1	(7)

Module -2

11	a) Explain the evolution of blockchain.	CO2	(6)
	b) Differentiate between public and private blockchain.	CO2	(3)
12	a) Describe in detail the applications of blockchain in finance and healthcare.	CO2	(4)
	b) Comparison between centralized and decentralized systems.	CO2	(3)
	c) What is a Consortium Blockchain?	CO2	(2)

Module -3

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|----|----|--|-----|-----|
| 13 | a) | Explain Multichain technology and its working. | CO3 | (5) |
| | b) | Discuss advantages and disadvantages of Ethereum. | CO3 | (4) |
| 14 | a) | Explain the major challenges of developing new projects on the Bitcoin platform. | CO3 | (2) |
| | b) | State any four applications of cryptocurrency. | CO3 | (4) |
| | c) | Explain the type of Ethereum accounts. | CO3 | (3) |

Module -4

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|----|----|--|-----|-----|
| 15 | a) | Explain the role and working mechanics of oracles in blockchain technology. | CO4 | (7) |
| | b) | List the elements present in the Ethereum blockchain. | CO4 | (2) |
| 16 | | Explain Ethereum transactions and messages. Describe the types of transactions and the standard fields present in an Ethereum transaction. | CO4 | (9) |
