

Unit IV

8. What are the advantages and disadvantages of using different Blockchain platforms, and how do they cater to specific requirements of different applications ? **15**
9. (a) How does the decentralized nature of Blockchain technology influence the design and architecture of distributed applications in terms of scalability, security, and user experience ? **8**
- (b) Discuss any *two* successful Blockchain applications. **7**

Roll No.

Total Pages : 04

MCA/M-24

24535

BLOCKCHAIN TECHNOLOGY

MCA-20-45 (iii)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Answer the following questions in brief : **5×3=15**

- (a) What are different types of Blockchain ? Explain in brief.
- (b) What are the key milestones in the history of Bitcoin ?
- (c) What are the advantages and disadvantages of Proof of Work (PoW) compared to alternative consensus mechanisms like Proof of Stake (PoS) ?
- (d) What is double spending in the context of digital currencies like Bitcoin ? Explain in brief.
- (e) What are the key advantages of Ethereum over Bitcoin ? Explain.

Unit I

2. (a) What is Blockchain technology ? Discuss its historical evolution. 7
- (b) How does Blockchain technology facilitate full ecosystem decentralization beyond financial transactions ? Explain. 8
3. (a) What methods are commonly employed for decentralization within Blockchain systems ? Explain. 8
- (b) Provide examples of decentralized organizations that leverage Blockchain technology for their operations. 7

Unit II

4. (a) What is Blockchain mining in the context of Bitcoin, and how does it contribute to maintaining the integrity and security of the network ? 8
- (b) Apart from Bitcoin, what are alternative coins (altcoins), and how do they differ from Bitcoin in terms of features, use cases, and limitations ? 7

5. (a) Explain the role of digital keys and addresses in Bitcoin transactions. How do they ensure security and ownership of assets on the Blockchain ? Explain. 8
- (b) How have different versions and variants of Blockchain technology evolved over time, and what are the distinguishing features of each ? 7

Unit III

6. (a) How do APIs (Application Programming Interfaces) enable developers to integrate Bitcoin functionality into their applications or services ? 8
- (b) How have different versions and variants of Blockchain technology evolved over time, and what are the distinguishing features of each ? 7
7. (a) What role do nodes play in the Bitcoin network, and how do they contribute to the validation and propagation of transactions ? 8
- (b) Discuss some recent innovations or developments in the Bitcoin ecosystem that have enhanced its functionality or expanded its use cases. 7