Code No: **R204105I** **R20** **Set No. 1**

IV B.Tech I Semester Regular Examinations, January – 2024

BLOCK CHAIN TECHNOLOGIES

(Common to Computer Science & Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT - I

1 a) How has blockchain technology influenced and changed the digitalization landscape? Explain. [7]

b) Differentiate between traditional and blockchain transactions using a suitable example. [7]

(OR)

2 a) Explain the key cryptographic concepts that are essential to deal with blockchain. [7]

b) What distinguishes blockchain from traditional centralized systems in terms of trust and security? Explain. [7]

UNIT - II

3 a) Explain the concept of blockchain neutrality. [7]

b) What is a hybrid blockchain? What are the features and drawbacks of consortium blockchain? Explain. [7]

(OR)

4 a) How can blockchain technology be used to authenticate and track ownership of digital art? Explain. [7]

b) Why is blockchain neutrality important? How does it relate to decentralization? Explain. [7]

UNIT - III

5 a) Explain the various characteristics of Bitcoin. [7]

b) How does Bitcoin's scripting language enable smart contracts? Explain. [7]

(OR)

6 a) Briefly explain the history of micropaymentschemes. [7]

b) What is Grid coin? How does it relate to blockchain and distributed computing? Explain. [7]

Code No: **R204105I** **R20** **Set No. 1**

UNIT - IV

7 a) Explain the three Byzantine general problems. [7]
b) Explain the three requirements of a consensus algorithm in detail. [7]

(OR)

8 a) Explain the three types of faults in a distributed environment. [7]
b) Discuss the various components of a Hyperledger fabric. [7]

UNIT - V

9 a) What are the technical challenges associated with blockchain scalability? How do they impact its usability in large-scale applications? Explain. [7]
b) How can blockchain help in Government Regulations? Explain. [7]

(OR)

10 a) Write short notes on Business model challenges. [7]
b) Explain in detail about Medical Information systems. [7]

Code No: **R204105I** **R20** **Set No. 2**

IV B.Tech I Semester Regular Examinations, January – 2024

BLOCK CHAIN TECHNOLOGIES

(Common to Computer Science & Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT - I

1 a) What are crypto currencies? How do they function within a blockchain ecosystem? Explain. [7]

b) Explain peer-to-peer networks, public key cryptography and distributed consensus in the context of blockchain. [7]

(OR)

2 a) Explain the key principles that determine blockchain's decentralized nature. [7]

b) How might blockchain technology impact the future of financial markets and prediction markets? Explain. [7]

UNIT - II

3 a) What is a public blockchain? What are the features and drawbacks of public blockchain? Explain. [7]

b) Write any seven differences between cryptographic hashing and regular hashing. [7]

(OR)

4 a) What are hash puzzles? How are they used in blockchain technology? Explain. [7]

b) How can blockchain technology be extended or customized for specific use cases? Explain with an example. [7]

UNIT - III

5 a) What are Bitcoin scripts? How are they used in transaction validation? Explain. [7]

b) Explain the micropayment channel protocol with a suitable diagram. [7]

(OR)

6 a) What are the potential risks of centralization in Bitcoin mining? Explain. [7]

b) How can individuals benefit from enrolling in Bitcoin MOOCs? Explain. [7]

Code No: **R204105I** **R20** **Set No. 2**

UNIT - IV

7	a)	How are the three Byzantine general problems handled when the Lieutenant is faulty? Explain.	[7]
	b)	Discuss the properties of a consensus algorithm.	[7]
		(OR)	
8	a)	Explain the concept of channels in Hyperledger fabric.	[7]
	b)	How does Ethereum differ from Bitcoin in terms of its primary functionality? Explain.	[7]

UNIT - V

9	a)	What is the role of interoperability in overcoming technical challenges in the blockchain ecosystem? Explain.	[7]
	b)	How can blockchain help in disintermediation and collaboration in the education sector? Explain.	[7]
		(OR)	
10	a)	How can blockchain help in drug supply chain management? Explain.	[7]
	b)	What are some common business model challenges that companies face when implementing blockchain solutions? Explain.	[7]

Code No: **R204105I** **R20** **Set No. 3**

IV B.Tech I Semester Regular Examinations, January – 2024
BLOCK CHAIN TECHNOLOGIES
(Common to Computer Science & Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
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UNIT - I

1 a) In what ways are financial services being disrupted or improved by blockchain technology? [7]
b) Explain the mechanics of how a cryptocurrency operates. [7]

(OR)

2 a) What are Bitcoin prediction markets? How do they operate within the cryptocurrency ecosystem? Explain. [7]
b) Explain the blockchain ecosystem in detail. [7]

UNIT - II

3 a) What is hashing, and how does it work? Explain. [7]
b) How do public key cryptosystems work? Explain. [7]

(OR)

4 a) What is a private blockchain? What are the features and drawbacks of public blockchain? Explain. [7]
b) How do miners solve hash puzzles in cryptocurrency mining? Explain. [7]

UNIT - III

5 a) How do scalability issues affect Bitcoin's usability as a global currency? Explain. [7]
b) Why blockchain in Genomics? Why is blockchain technology suitable for bioinformatics and healthcare applications? Explain. [7]

(OR)

6 a) Discuss the required components of folding coin. [7]
b) What is blockchain escrow service? How does it work? Explain. [7]

Code No: **R204105I** **R20** **Set No. 3**

UNIT - IV

7 a) How are the three Byzantine general problems handled when the commander is faulty? Explain. [7]

b) Explain the Hyperledger fabric framework in detail. [7]

(OR)

8 a) What is the Internet of things application (IOTA) blockchain? How does the IOTA blockchain work? Explain. [7]

b) Explain about currency Multiplicity & Demurrage currency. [7]

UNIT - V

9 a) How does transaction processing speed affect the blockchain? Explain. [7]

b) How can blockchain help in managing the interoperability of the health sector? Explain. [7]

(OR)

10 a) Discuss some high-profile scandals or controversies related to blockchain and cryptocurrencies. [7]

b) What measures can the blockchain community take to improve trust and transparency in the industry? Explain. [7]

Code No: **R204105I** **R20** **Set No. 4**

IV B.Tech I Semester Regular Examinations, January – 2024

BLOCK CHAIN TECHNOLOGIES

(Common to Computer Science & Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT - I

1 a) Discuss the potential application of blockchains in the industry. [7]
b) What is a hash in a blockchain? What are the key characteristics of Hash? Explain. [7]

(OR)

2 a) Explain the pros and cons of blockchain in detail. [7]
b) What are the challenges and risks associated with blockchain-based currencies? [7]

UNIT - II

3 a) Explain the concept of digital signatures in public key cryptography. [7]
b) List the examples of industries or applications where private and public blockchain is more suitable. [7]

(OR)

4 a) What are the challenges in modifying existing blockchain protocols? Explain. [7]
b) What are the privacy and security implications of digital identity on the blockchain? Explain. [7]

UNIT - III

5 a) What are the safety measures followed while storing and transacting in cryptocurrencies? Explain. [7]
b) How is cryptography applied in blockchain science to protect data and enable secure transactions? Explain. [7]

(OR)

6 a) How does Bitcoin solve the problem of trust? Explain. [7]
b) Discuss the role of education in promoting responsible Bitcoin and cryptocurrency usage. [7]

Code No: **R204105I** **R20** **Set No. 4**

UNIT - IV

7 a) How are the four Byzantine general problems handled when the two Lieutenants are faulty? Explain. [7]

b) Explain how CAP in Hyperledger fabric is taken care of. [7]

(OR)

8 a) Explain the concept of smart contracts on the Ethereum platform. [7]

b) Discuss any two use cases of IOTA. [7]

UNIT - V

9 a) What is the current state of government regulations surrounding blockchain and cryptocurrencies in different countries? Explain. [7]

b) What is tokenization in the real state? How can blockchain be used for this? Explain. [7]

(OR)

10 a) How can blockchain be utilized to store and manage medical records and patient data securely? Explain. [7]

b) Write down the uses of Block chain in e-Governance. [7]