

Total No. of Questions: 6

Total No. of Printed Pages:3

Enrollment No.....



Faculty of Engineering  
End Sem (Even) Examination May-2019  
OE00016 Blockchain Architecture

Programme: B.Tech.

Branch/Specialisation: All

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1
- What is the name of the first cryptocurrency ever made in 2009? **1**  
(a) Litecoin (b) Bitcoin (c) Dark coin (d) Rim bit
  - Each Block of the Blockchain Consist of which of the following? **1**  
(a) A hash Pointer to the Previous Block  
(b) Timestamp  
(c) List of transactions  
(d) All of these
  - A block in blockchain is pointed using? **1**  
(a) Hash Pointer (b) User ID  
(c) Transaction ID (d) Timestamp
  - The current cryptographic hash algorithm used in Bitcoin is? **1**  
(a) RSA (b) MD5  
(c) Double SHA128 (d) Double SHA256
  - Which of the following is used to ensure consensus in Bitcoin framework? **1**  
(a) PoW (Proof of Work) (b) PoS (Proof of Stake)  
(c) PoC (Proof of Concept) (d) None of these
  - Which of the following serve as the primary assumption for a permissioned blockchain? **1**  
(a) Closed network (b) Chosen miners  
(c) No malicious miners (d) All of these
  - Bitcoin uses which network technology for transaction and mining? **1**  
(a) Peer to Peer (b) Distributed Network  
(c) Wide area Network (d) Intranet Network

P.T.O.

[2]

- viii. Which of the following variable among the components of the block header is computed (or rather obtained) to achieve the difficulty posed by the blockchain network? **1**  
 (a) Merkle tree root (b) Nonce  
 (c) Timestamp (d) Previous block hash
- ix. Which of the following advantages are provided by the blockchain based solution for trade logistics? **1**  
 (a) Tamper proof and digitally signed documents  
 (b) Real Time Visibility and Analytics  
 (c) Secure Data Exchanges  
 (d) All of these
- x. The blockchain can address the errors in the current supply chain by: **1**  
 (a) Automatically tracking the information and verifying that using the smart contract  
 (b) Only verifying the information using the smart contract  
 (c) Only tracking the information  
 (d) Making the data available to auditors to manually verify and correct errors
- Q.2 i. What is the advantage of Cryptocurrency? **3**  
 ii. Define Cryptocurrency wallet and its type. **7**
- OR iii. What is Double Spending? Is it possible to double spend in a Blockchain system? Explain it. **7**
- Q.3 i. What do you mean by blocks in the blockchain technology? **3**  
 ii. What is encryption and discuss its role in Blockchain. **7**
- OR iii. List the key features of blockchain? Explain in detail. **7**
- Q.4 i. Define Consensus Algorithm and its use. **4**  
 ii. Compare Bitcoin and Ethereum architecture. **6**
- OR iii. State difference between proof-of-work & proof-of-stake. **6**
- Q.5 i. Define Fork & explain its types. **4**

[3]

- ii. What are Merkle trees? How important are Merkle trees in Blockchains? **6**
- OR iii. Compare Private vs Public Blockchain. **6**
- Q.6 Attempt any two:
- i. Write steps to implement Patient Medical record management in Blockchain. **5**
- ii. List out popular real-world use cases implemented using Blockchain technology. **5**
- iii. Compare Hash graph, Tangle with Blockchain technology. **5**

\*\*\*\*\*

**Marking Scheme**  
**OE00016 Blockchain Architecture**

Q.1	i.	What is the name of the first cryptocurrency ever made in 2009? (b) Bitcoin	<b>1</b>
	ii.	Each Block of the Blockchain Consist of which of the following? (d) All of these	<b>1</b>
	iii.	A block in blockchain is pointed using? (a) Hash Pointer	<b>1</b>
	iv.	The current cryptographic hash algorithm used in Bitcoin is? (d) Double SHA256	<b>1</b>
	v.	Which of the following is used to ensure consensus in Bitcoin framework? (a) PoW (Proof of Work)	<b>1</b>
	vi.	Which of the following serve as the primary assumption for a permissioned blockchain? (a) Closed network	<b>1</b>
	vii.	Bitcoin uses which network technology for transaction and mining? (a) Peer to Peer	<b>1</b>
	viii.	Which of the following variable among the components of the block header is computed (or rather obtained) to achieve the difficulty posed by the blockchain network? (b) Nonce	<b>1</b>
	ix.	Which of the following advantages are provided by the blockchain based solution for trade logistics? (d) All of these	<b>1</b>
	x.	The blockchain can address the errors in the current supply chain by: (a) Automatically tracking the information and verifying that using the smart contract	<b>1</b>

Q.2	i.	Advantage of Cryptocurrency 1 mark for each advantage	<b>3</b>
	ii.	Cryptocurrency wallet Its type	<b>7</b>
OR	iii.	Double Spending Possibility in Blockchain system	<b>7</b>

Q.3	i.	Blocks in the blockchain technology	<b>3</b>
-----	----	-------------------------------------	----------

		Definition of block	1 mark	
		Diagram of block	1 mark	
		Basic component in the block	1 mark	
	ii.	Encryption Uses in Blockchain.	3 marks 4 marks	<b>7</b>
OR	iii.	Key features of blockchain 1 mark for each feature	(1 mark * 7)	<b>7</b>
Q.4	i.	Definition of Consensus Algorithm Its use in blockchain	2 marks 2 marks	<b>4</b>
	ii.	Bitcoin Ethereum architecture	3 marks 3 marks	<b>6</b>
OR	iii.	Proof-of-work Proof-of-stake	3 marks 3 marks	<b>6</b>
Q.5	i.	Define Fork Its types 1 mark for each (1 mark * 2)	2 marks 2 marks	<b>4</b>
	ii.	Explanation of Merkle trees Diagram of tree Importance of Merkle trees in Blockchains	2 marks 2 marks 2 marks	<b>6</b>
OR	iii.	Private Blockchain Public Blockchain.	3 marks 3 marks	<b>6</b>
Q.6		Attempt any two:		
	i.	Identifying the entities in the problem statement  Steps to implement it in the blockchain	2 marks 3 marks	<b>5</b>
	ii.	List out popular real-world use cases implemented using Blockchain technology. 1 mark for each use case with description	(1 mark * 5)	<b>5</b>
	iii.	Compare Hash graph, Tangle with Blockchain technology 1 mark for the description of three For comparison between them	3 marks 2 marks	<b>5</b>

\*\*\*\*\*