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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2022-2023)

Subject: Blockchain Technology and Application Development

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

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1. Attempt all parts:-

- | | | |
|------|--|---|
| 1-a. | Block Chain is _____. (CO1) | 1 |
| | (a) A distributed ledger on the P2P network
(b) A type of cryptocurrency
(c) An exchange
(d) A centralized ledger | |
| 1-b. | In cryptocurrencies a ledger records _____. (CO1) | 1 |
| | (a) list of balances
(b) list of transactions
(c) list of accounts
(d) none of these | |
| 1-c. | How often does the Bitcoin ledger reconcile? (CO2) | 1 |
| | (a) Every day
(b) Every 3 months
(c) Every 3 minutes | |

- (d) Every 10 minutes
- 1-d. Blockchain is a peer-to-peer _____ distributed ledger technology that makes the records of any digital asset transparent and unchangeable. (CO2) 1
- (a) Decentralized
 - (b) Demanding
 - (c) Secure
 - (d) Popular
- 1-e. Ethereum is best suited for _____. (CO3) 1
- (a) economic systems
 - (b) video creation systems
 - (c) website creation
 - (d) survey systems
- 1-f. What is a fork? (CO3) 1
- (a) The copy of a block
 - (b) The creation of an alternative version of a blockchain
 - (c) The creation of a new distributed ledger
 - (d) The copy of a cryptocurrency wallet
- 1-g. The Blockchain was first proposed by a person or group of person identified as Satoshi Nakamoto in the year _____. (CO4) 1
- (a) 2006
 - (b) 2008
 - (c) 2001
 - (d) 2018
- 1-h. What is gas in Ethereum network? (CO4) 1
- (a) A type of fuel that powers the Ethereum network
 - (b) A unit of measurement for the cost of running a transaction on the Ethereum network
 - (c) Both A and B
 - (d) None of the above
- 1-i. What is the main advantage of a permissioned blockchain platform over a permissionless one? (CO5) 1
- (a) Higher security
 - (b) Faster transactions

- (c) Decentralization
- (d) Public accessibility

- 1-j. What is the best use case for smart contracts? (CO5) 1
- (a) Digitalize and automate legally binding contracts using artificial intelligence (AI)
 - (b) Enforce the execution of contracts in the legal system using cryptocurrencies
 - (c) Ensure automatic payments by predetermined actions or events in insurance contracts
 - (d) Extend the Bitcoin blockchain, the best-known smart contract platform, to the judicial system

2. Attempt all parts:-

- 2.a. Differentiate between block chain and bitcoin. (CO1) 2
- 2.b. Define Proof of Stake. (CO2) 2
- 2.c. Explain Permissioned block chain. (CO3) 2
- 2.d. Who created Ethereum and when? (CO4) 2
- 2.e. What is blockchain technology? (CO5) 2

SECTION B 30

3. Answer any five of the following:-

- 3-a. Specify the purpose of distributed system with an example. (CO1) 6
- 3-b. Discuss security aspects of blockchain. (CO1) 6
- 3-c. How the double spending problem can be prevented in blockchain network. (CO2) 6
- 3-d. Describe the whole procedure of consensus in bitcoin network. (CO2) 6
- 3.e. Explain how blockchain prevents tampering? (CO3) 6
- 3.f. How do developers ensure the security and privacy of user data in decentralized applications built on the Ethereum blockchain? (CO4) 6
- 3.g. Where can the Hyperledger Caliper tool be used? (CO5) 6

SECTION C 50

4. Answer any one of the following:-

- 4-a. Discuss the use of blockchain technology in music industry. (CO1) 10
- 4-b. Write a case study of blockchain and its applications in Supplychain management. (CO1) 10

5. Answer any one of the following:-

- 5-a. How the systems got affected by the attacks on the PoW network? (CO2) 10
- 5-b. Explain the proof of burn consensus algorithm. (CO2) 10

6. Answer any one of the following:-

- 6-a. How distributed consensus can be achieved in closed environment? (CO3) 10
- 6-b. Discuss the use of blockchain technology in energy and utilities. (CO3) 10

7. Answer any one of the following:-

- 7-a. Write case study of Ethereum in Blockchain Development. (CO4) 10
- 7-b. Define Ethereum client, EVM and other important ERC standards. (CO4) 10

8. Answer any one of the following:-

- 8-a. Differentiate between various versions of Hyperledger Fabrics. (CO5) 10
- 8-b. Explain the identities and policies associated with Hyperledger Fabric. (CO5) 10

2022-23 Jan_June