S.No. : 418 GE 34011

No. of Printed Pages : 04

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 44007 Roll No. | | | | | | | | | | |

B. Tech. Examination, 2024-25

(Even Semester)

BLOCKCHAIN AND DISTRIBUTED LEDGER TECHNOLOGY

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION–A

1. Attempt all parts of the following : 8×1=8

   (a) What is a distributed hash table?

   (b) What is the purpose of Merkle Patricia tree in blockchain?

   (c) Define proof of stake.

[P. T. O.

(d) What is a Sybil attack?

(e) What is a smart contract?

(f) Mention any one difference between DAO and GHOST.

(g) What is the role of stakeholders in crypto-currency regulation?

(h) Name one blockchain use case in the medical field.

SECTION – B

2. Attempt any two parts of the following : 2×6=12

(a) Explain the concept of byzantine general problem and its importance in blockchain.

(b) Describe the Nakamoto consensus and how it ensures trust in a decentralized network?

(c) Discuss vulnerabilities in blockchain and how sidechains help mitigate them?

(d) Explain the impact of blockchain on the global economy with relevant examples.

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each questions. 8×5=40

3. (a) Explain the architecture and advantages of a distributed database over a conventional database.

(b) Describe the concept and significance of digital signature and ECDSA in blockchain.

(c) What is the role of memory hard algorithm in security blockchain systems?

4. (a) Differentiate between Proof of work, proof of stake and proof of burn with examples.

(b) What is the Sybil attack? How can blockchain systems defend against it?

(c) Explain the concept of block difficulty and how it affects mining?

5. (a) Explain the construction and key components of Ethereum blockchain.

(b) Discuss how smart contract function? Provide a use case example.

[P. T. O.

(c) What is GHOST protocol? How does it address blockchain security concerns?

6. (a) Describe the legal challenges and regulatory aspects of cryptocurrencies.

(b) What are the roles of blockchain in the healthcare sector? Explain wtih an example.

(c) Discuss the use of blockchain in Domain Name Service (DNS).

⌘⌘⌘