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B.TECH. V SEMESTER (NEW SCHEME)
MAIN/BACK EXAMINATION 2024-25
COMPUTER SCIENCE AND ENGINEERING
5CS5-15 - Introduction to Blockchain
[5AD5-15, 5AI5-15, 5AM5-15, 5CA5-15, 5CD5-15, 5DS5-15, 5IT5-15, 5MC5-15, 5CM5-15, 5CY5-15] Common to CS, AI, AD, AM, CA, CD, DS, IT, MC, CM, CY

Time : 3 Hours] **[Max. Marks :** 70

[Min. Passing Marks :

Instructions to Candidates :

Part-A : Short Answer Type Questions (up to **25** words) 10 × 2 = 20 marks. All 10 questions are compulsory.

Part-B : Analytical/Problem Solving questions 5 × 4 = 20 marks. Candidates have to answer 5 questions out of 7.

Part-C : Descriptive/Analytical/Problem Solving questions 3 × 10 marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination. (Mentioned in form no. 205).

1_____ 2_____

Part-A

Q. 1. Give the features of blockchain.

Q. 2. State the characteristics of the cryptography.

Q. 3. What is an advantage of a public blockchain over private blockchain ?

Q. 4. Discuss the role of encryption in blockchain.

Q. 5. What are the benefits of smart contracts ?

Q. 6. What is the principle of blockchain operation ?

Q. 7. Differentiate between hashing and encryption.

Q. 8. How does blockchain technology benefits the economy ?

Q. 9. What is the Federated Byzantine Consensus Mechanism ? Explain.

Q. 10. State the characteristics of distributed systems.

Part-B

Q. 1. Explain computing problems with solution of how to minimize this problem.

Q. 2. Describe in detail about the proof of seek concensus algorithm with its advantages and disadvantages.

Q. 3. Discuss in detail about different types of blockchain architecture.

Q. 4. Explain the difference between Bit Coin blockchain and Ethereum blockchain.

Q. 5. Explain in detail about consensus model with its uses in Ethereum blockchain.

Q. 6. Discuss in detail about the concept of byzantine fault tolerance method.

Q. 7. Explain the working of Ethereum architecture with its different stages.

Part-C

Q. 1. Discuss in detail about the working method of blockchain network with neat block architecture.

Q. 2. Explain symmetric, asymmetric and hashing methods for encryption in cryptography.

Q. 3. What is the role of consensus algorithm for distributed systems ? Explain practical Byzantine fault tolerance and delegated Byzantine Fault tolerance algorithm for distributed system.

Q. 4. Explain the principle of private blockchain maintaining high data security enabling greater accountability and trust in the supply chain for healthcare sector.

Q. 5. What do you understand about consensus mechanism ? How does the consensus mechanism work ? Explain the concept of working behaviour of consensus mechanism to help in trading system ?

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