

5E1826**5E1826****B.Tech. V-Sem. (Main & Back) Examination, January/February - 2024****Artificial Intelligence and Data Science****5AID5-11 Fundamentals of Block Chain(Elective-I)****AID, CAI, CDS****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

Attempt all Ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of Five questions from Part C.

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

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

PART- A**(Answer should be given up to 25 words only).****ALL questions are Compulsory.****(10×2=20)**

1. What is Nonce and How does it work?
2. Explain different types of Wallet in Blockchain Technology.
3. Explain the Pros and Cons of Proof-of Capacity.
4. What is Double-Spending and Prevention of Double Spending?
5. What is Cryptocurrency? Explain with some Cryptocurrency Examples?
6. How Mining Process Works in Blockchain?
7. What is a Distributed System? Explain with Characteristics.
8. Explain the Diff types of Application Developed in Ethereum?
9. Explain the Components of Ethereum Network in brief.
10. What is Delegated Proof-of-Work (DPoW)?

PART - B

(Analytical/Problem solving questions)

Attempt any FIVE questions.

(5×4=20)

1. How Blockchain-Hashing works? Explain the Uses of SHA-256 in Blockchain?
2. What is Blockchain Structure? Explain the Structure of a Block. What are the main Components of Blockchain Network?
3. What are the Key differences between Blockchain and a Database with Centralized, Decentralized and Distributed Systems?
4. Explain the Different Types of Tiers of Blockchain Technology with examples.
5. What is Public-key Cryptography and Benefits of Public-key Cryptography?
6. What is Proof-of-Burn and Proof of Stake Algorithm with Pros and Cons of it?
7. Explain Blocked vs.Divergent States, quorum Intersections and Disjoint Quorums in detail.

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any THREE questions.

(3×10=30)

1. How Blockchain Technology works? Explain benefits of Blockchain Technology with different types of Tiers of Blockchain Technology?
2. What is Blockchain? How Byzantine Generals' Computing problems occur in it.
3. Explain the Benefits of Ethereum and How Does Ethereum Work with Real-World Applications of Ethereum?
4. Explain the different types of Public, Private, Hybrid and Consortium Blockchain with Advantages and Disadvantages in brief.
5. Explain Practical Byzantine Fault Tolerance (pBFT) in detail. What are the Blockchain use Cases in Supply Chain Management?