**Department of Artificial Intelligence and Machine Learning**

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| **Subject Name: Blockchain Technology** |
| **Subject Code: 21CS734** |
| **SEM: VII A** |
| **Faculty: Ms. Ramya H** |

**MODULE 1**

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| **SL No** | **Question Bank** | **CO** | **Level** | **Marks** | **Module** |
| 1. | Define Blockchain | CO1 | L1 | 2 | 1 |
| 2. | What is a Bitcoin? | CO1 | L1 | 2 | 1 |
| 3. | What is Double Spending in Blockchain? | CO1 | L1 | 5 | 1 |
| 4. | Explain the concept of Distributed system. Discuss Byzantine Generals problem | CO1 | L2 | 7 | 1 |
| 5. | Write a note on: a) Distributed Ledger b) Distributed Ledger Technology c) Public blockchain d) Private blockchain e) Side chains f) Permissioned ledger g) Consensus | CO1 | L1 | 14 | 1 |
| 6. | With a neat diagram explain the generic structure of a block | CO1 | L1 | 10 | 1 |
| 7. | Explain the generic elements and structure of a blockchain | CO1 | L2 | 10 | 1 |
| 8. | Explain how blockchain accumulates blocks | CO1 | L2 | 5 | 1 |
| 9. | Explain the benefits and limitations of blockchain technology | CO1 | L2 | 10 | 1 |
| 10. | Explain the tiers of blockchain technology | CO1 | L2 | 5 | 1 |
| 11. | Briefly explain the features of a blockchain | CO1 | L2 | 8 | 1 |
| 12. | List and explain the consensus algorithms. | CO1 | L1 | 10 | 1 |
| 13. | Write a note on CAP theorem | CO1 | L1 | 7 | 1 |
| 14. | Explain in detail: (i) Proof of Work (ii) Proof of Stake (iii)Proof of Burn. (iv). Proof of Elapsed Time. | CO1 | L2 | 10 | 1 |
| 15. | Summarize the Solutions to achieve Byzantine Fault Tolerance. | CO1 | L2 | 10 | 1 |
| 16. | Write a note on a) Decentralized System b) Distributed System c) Centralized system | CO1 | L1 | 7 | 1 |
| 17. | How to achieve complete decentralization and necessary elements to achieve decentralization | CO1 | L1 | 10 | 1 |
| 18. | Write a note on 1) DO 2) DAO 3) DAC 4) DAS 5) DApps | CO1 | L1 | 8 | 1 |
| 19. | Discuss the requirements and operations of a Decentralized applications. | CO1 | L2 | 7 | 1 |

**MODULE 2**

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| **SL No** | **Question Bank** | **CO** | **Level** | **Marks** | **Module** |
| 1. | Explain briefly cryptographic hash functions and its properties in detail | CO2 | L2 | 10 | 2 |
| 2. | Explain collision resistance property of cryptographic hash function and its application | CO2 | L2 | 10 | 2 |
| 3. | Explain hiding property of cryptographic hash function and its application | CO2 | L2 | 10 | 2 |
| 4. | Write a note on commitment scheme | CO2 | L1 | 8 | 2 |
| 5. | Explain the concept of SHA-256 | CO2 | L1 | 5 | 2 |
| 6. | Write a note on hash pointers and implementation of Data structures in it | CO2 | L1 | 10 | 2 |
| 7. | Briefly explain the concept of Merkle tree Data structure | CO2 | L2 | 10 | 2 |
| 8. | Explain about Digital signature cryptographic primitive. |  | L2 | 10 | 2 |
| 9. | Briefly explain the concept of public keys as identifier | CO2 | L2 | 10 | 2 |
| 10. | Write a note on Goofy coin | CO2 | L1 | 5 | 2 |
| 11. | Write a note on Scrooge coin | CO2 | L1 | 10 | 2 |

**Faculty Signature**