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Question Paper Code : 30123

M.C.A DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Elective

MC 4013 – CRYPTOCURRENCY AND BLOCKCHAIN TECHNOLOGIES

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How an attacker could manipulate the transaction history of a blockchain to be able to spend a token or a cryptocurrency twice?
2. Mention the purpose of consensus algorithm.
3. Differentiate between Wei and Ether?
4. Describe briefly "Gas" with respect to Ethereum?
5. What is OmiseGo?
6. Why is it necessary to always check whether the web3 provider is set in the beginning of your web DApp code?
7. Suppose that there are 6 channels present in a Hyperledger Fabric network, each of them has access to 4 chaincodes A, B, C, D. How many containers will run in each peer for running this system?
8. Give the distinctive properties of private and public blockchain.
9. What is the difference between Hyperledger and Corda?
10. What is CoCo Framework?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain the concept of Merkle tree using a suitable diagram. (7)
(ii) List the uses of Merkle tree in blockchain. (6)

Or

- (b) Explain different consensus algorithms: proof of work, proof of state, proof of burn, and proof of elapsed time.
12. (a) (i) Differentiate between bitcoin and Ethereum. (6)
(ii) Why mining is required in blockchain? Explain with respect to Bitcoin blockchain. (7)

Or

- (b) Explain various layers of Ethereum architecture. Elaborate each component of Ethereum in detail.
13. (a) (i) Differentiate between meta mask and mist (6)
(ii) List various features of meta mask (7)

Or

- (b) (i) List various steps to create and connect wallet using metamask. (7)
(ii) Write the various steps to connect remix using Ganache. (6)
14. (a) (i) What is hyperledger Iroha? What are the key features of Iroha? How it is different from Bitcoin and Ethereum? (7)
(ii) Explain the architecture of hyperledger Fabric and it's major components. (6)

Or

- (b) (i) How hyperledger Sawtooth is different from hyperledger Fabric? (6)
(ii) Discuss the overall architecture and key components of Sawtooth node. (7)
15. (a) What is Bigchain DB? List the features of Bigchain DB.

Or

- (b) What is IOTA? List the various features of IOTA. What use case can be built with IOTA?

PART C — (1 × 15 = 15 marks)

16. (a) Analyse the following.
- (i) Hydra chain (5)
 - (ii) Tierion (5)
 - (iii) Proof of elapsed time (5)

Or

- (b) Compare various frame works used in blockchain technology.
