BE Sem VII (C Scheme) R-2019 "Computer" Dec' 2022

19/12/2022

(3 Hours) (Total Marks: 80)

N.B.: 1. Question No. 1 is compulsory.
2. Answer any three out of the remaining questions.
3. Assume suitable data if necessary.
4. Figures to the right indicate full marks.

Q1. Attempt the following (any 4): (20)

a. Define blockchain? Compare different types of blockchain.
b. What is a smart contract? How crowdfunding platforms can be managed using smart contracts?
c. What is a backup in Practical Byzantine Fault Tolerance (PBFT) algorithm?
d. What is a Merkle tree? Explain the structure of a Merkle tree.
e. Write a program in solidity to check whether a number is prime or not.

Q2. Attempt the following:

a. State and explain various challenges that occur while implementing blockchain. (10)
b. What is a double spending problem? How PoW solves the problem of double spending? (10)

Q3. Attempt the following:

a. Compare Bitcoin and Ethereum. How to calculate Mining difficulty in bitcoin (10)
b. Explain Hyperledger Fabric v1 architecture. (10)

Q4. Attempt the following:

a. Describe the architecture of Ethereum. (10)
b. Write a program in solidity to implement multi-level inheritance. (10)

Q5. Attempt the following:

a. Explain PAXOS consensus algorithm for a private blockchain. (10)
b. Explain fixed and dynamic arrays in solidity with suitable examples. (10)

Q6. Write short notes on (any 2): (20)

a. Corda
b. UTXO model of Bitcoin
c. Quorum
d. Fallback function in Solidity

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