

(3 hrs.)

Maximum Marks = 80

- NB:**
- 1. Question No. 1 is compulsory and solve any THREE questions from remaining questions**
  - 2. Assume suitable data if necessary**
  - 3. Draw clean and neat diagrams**

- Q1.** a. Explain Hyperledger sawtooth. [05 Marks]  
b. Explain uses and limitations of python in blockchain. [05 Marks]  
c. Describe the features in Ethereum that are not available in Bitcoin. [05 Marks]  
Also discuss what is Whisper and Swarm. [05 Marks]  
d. What are the best practices for blockchain dApp Testing [05 Marks]
- Q2** a. Describe each Component of Ethereum. [10 Marks]  
b. With a neat diagram explain the components of the dApp architecture. [10 Marks]
- Q 3.** a. Explain built in and user defined functions in solidity with example. [10 Marks]  
b. Explain Chaincodes For Developers and Operators In Blockchain [10 Marks]
- Q 4.** a. With a neat diagram explain Transaction Flow in Hyperledger Fabric [10 Marks]  
b. What is Decentralized Autonomous Organization? Discuss its benefits and limitations. [10 Marks]
- Q 5.** a. Explain ERC20 token standard with its functions. Compare how ERC721 tokens are different than ERC20 tokens. [10 Marks]  
b. Explain contract inheritance and modifiers in solidity with example. [10 Marks]
- Q .6.** a. Explain use of blockchain for Supply Chain Management. [10 Marks]  
b. Describe IPFS with reference to file storage in Blockchain. [10 Marks]

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