M.Tech (CSE) 3rd Sem-2019
Sub: Blockchain Technology (BCT)

Time 3 Hours

Max Marks : 70

(Answer all questions and the figures in the right hand margin indicates marks)

1. (a) Define Blockchain Technology ? What are different aspects need to ensure by the Blockchain Technology ? Name basic principle of BCT. (8)

   (b) Write the Key Properties of Blockchain.Explain Crowd funding Platform using Smart Contract. (6)

   OR

   (c) Describe the origin of Blockchain Technology.How it is different from Bitcoin Cryptosystem. Write at least 6 different Blockchain implementation platform and their key properties. (10)

   (d) Explain the working principle of IPFS. (4)

2. (a) Define Hash function SHA256, its Preprocessing , and algorithm. (9)

   (b) What is Cryptographic Hash Function ? How to Guarantee Collision Free ? (5)

   OR

   (c) Define digital signature and explain the digital signature with public key cryptography in Blockchain network. (8)

   (d) Write short note on Proof of stake, proof of Burn,Block mining. (6)

3. (a) What is Double Spending ? How it is handle in Blockchain ? Explain Bitcoin Script and draw FORTH Sample Execution using RPN 12, 3, * ,4,+, 10, - ,CR (8)

   (b) What is Proof of Work(POW) ? Write about cryptography hash in POW and Hashcash in PoW. (6)

   OR

   (c) Describe the Hyperledger Composer and its associated goal in business network. (7)

   (d) Draw the Key Concepts for the Business Service Provider and its associated develops three components (7)

4. (a) Why distributed consensus algorithm is needed in Blockchain ? What are the faults associated with this ? Describe the PAXOS distributed consensus algorithm (10)

   (b) Write the Key Concepts and Benefits of Blockchain for Business network. (4)

   OR

(c) What are the requirements of a Consensus Algorithm ? Draw the Four Byzantine Generals Problem and explain in details. (9)

(d) Describe the Components in a Blockchain Solution. (5)

5. (a) Explain the privacy in a Blockchain system.Draw the data privacy diagram using encryption within chain code. (8)

(b) Write Types of security attacks and Defending solutions in Blockchain System. (6)

OR

(c) Write the Common risks to Blockchain 1.0 and 2.0 ,also explain the causes and possible consequence of each risk. (9)

(d) Explain real attacks on blockchain systems, and analyze the vulnerabilities exploited in these attacks. (5)