Fast**National University of Computer & Emerging Sciences, Karachi  
Spring-2019 CS-Department  
MidTerm  
14th March 2023, 5:00 pm – 6:00 pm**

|  |  |  |
| --- | --- | --- |
| **Course Code: CS-52123** | **Course Name: Blockchain and Cryptocurrency** | |
| **Instructor Names: Shahbaz Siddiqui** | | |
| **Student Roll No:** | | **Section No:** |

Instructions:

* Return the question paper.
* **All questions must be answered in answer script and according to the sequence given in the question paper.**
* Illustrate means you have to answers with the help of Diagram/Figure. **Written answers will not be graded where illustrations are required.**

**Time**: 60 minutes. **Max Marks**: 30 points

**Lab Exam**

Helping Links

<https://github.com/MultiChain/multichain-apilibraries/blob/main/python/examples.py>

1. Write a client-server code for Multichain Blockchain with Server name **BlockchainServer** and client name **BlockchainClient** then extract the following information from the client node and Server node
   * + 1. Extract addresses information of both server node and Client node [**2-Points]**
       2. Add at least 5 new address in Server node then display the information of new addresses [**2-Points]**
       3. Give Permission of send and receive to the 3rd address of Server node then displays the permissions information of that particular address [**2-Points]**
2. Authentication is the process of determining whether someone or something is, in fact, who or what it says it is. Authentication technology provides access control for systems by checking to see if a user's credentials match the credentials in a database of authorized users or in a data authentication server. In doing this, authentication assures secure systems, secure processes and enterprise information security. Write a code for Blockchain based authentication mechanism for Multisignature Address scheme

**[6-Points]**

1. Write a code to generate Stream named **Rule and** publish following Json information in the stream of Server node

{“Rule”:1,”Currenttime”:Latest System Time,”Hash”:hash(Message)}

Perform subscription of stream on Client Node and display the information of Server Stream

on client node

**[4-Points]**

4 ) Write a code to Perform Wallet transaction between Client node and the Server node .Create a wallet name **FASTunion** in server node with Rs:0 Value .Add Rs:50 from client side to the FASTunion wallet display the balance after transaction from client side

**[2-Points]**