School: ..... Campus: .....

Academic Year: ..... Subject Name: ..... Subject Code: .....

Semester: ..... Program: ..... Branch: ..... Specialization: .....

Date: .....

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiement : Explore the Chain – Using a Blockchain Explorer

Objective/Aim:

To study how blockchain data can be accessed and analyzed using blockchain explorer tools like **Etherscan**, and to understand how transactions, wallet addresses, and smart contracts are recorded and verified on the Ethereum blockchain network..

Apparatus/Software Used:

- Laptop or computer
- Web Browser
- MetaMask Wallet
- Ethereum Test Network (e.g., Sepolia)
- **Etherscan** Blockchain Explorer

Theory/Concept:

What is a Blockchain Explorer?

A **blockchain explorer** is a public web interface that allows users to check and analyze blockchain data in a simple and readable format. It helps users trace how digital transactions occur, verify wallet balances, and monitor smart contracts deployed on the blockchain.

It acts as a **window into the blockchain**, where all blocks, transactions, and wallet addresses are openly visible, ensuring transparency and decentralization

Main Functions of a Blockchain Explorer:

- **Transaction Lookup:**
  Displays details like sender and receiver addresses, transaction hash, amount of Ether transferred, gas limit, gas used, and transaction status.
- **Block Details:**
  Shows information about block number, timestamp, miner ID, and the total number of transactions included in that block.
- **Wallet Analysis:**
  Provides the current Ether balance, total number of transactions, and all incoming/outgoing transfers associated with a wallet address.

Procedure:

1 Open **Etherscan.io** in your web browser.
2 Select the correct network (e.g., Ethereum Mainnet or Sepolia Testnet).
3 In the search bar, enter any **transaction hash**, **block number**, or **wallet address**.
4 View the displayed information:

- **For a Transaction:** Check hash, sender, receiver, Ether value, gas fee, and status (success or failed).
- **For a Block:** Note block hash, miner name, timestamp, and number of transactions.
- **For a Wallet:** Record total balance, number of transactions, and type (external or contract)

5 Observe and record the data for at least one block and one transaction.
6 Compare transaction fees and confirmation times to understand blockchain performance..

Observation Table:

Query Type	Example Input (Tx Hash / Block No. / Address)	Output Observed (Details)
Transaction	**0xa91b45dfbfe1234c892ab2e45d6cb2f9c018d1f542b7fda0c6a8e1f230a9b7af**	**Sender, Receiver, Amount, Gas Used, Status**
Block	**25678910**	**Block Hash, Miner Address, Timestamp, Number of Transactions**
Wallet address	**0x45fE92c1Abd93e62f9aC60A8bBc1b7e56fD3149D**	**Wallet Balance, Transaction Count, Recent Activity**

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	**50**		

Signature of the Student:

Name :

Regn. No.

Signature of the Faculty: