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 : Blockchain in Supply Chains – Use Case Analysis

Objective/Aim:

To understand how blockchain technology can be implemented in supply chain management to improve transparency, traceability, and efficiency while reducing fraud and operational costs.

Apparatus/Software Used:

- Ethereum Blockchain / Hyperledger Fabric (conceptual)
- Remix IDE (for smart contract simulation)
- MetaMask Wallet (for testing transactions)
- Ganache (for local blockchain setup)
- IPFS (for decentralized storage)

Theory/Concept:

A supply chain involves a network of suppliers, manufacturers, distributors, and retailers working together to produce and deliver goods. Traditional supply chains face challenges such as:

- Lack of transparency
- Difficulty in tracking goods
- Paper-based documentation
- Counterfeiting

Blockchain technology provides a decentralized, immutable ledger that records all transactions securely and transparently.

Key features of Blockchain in Supply Chain:

1. Transparency: Every participant can view the status of goods and transactions in real-time.
2. Traceability: Each product's journey can be tracked from origin to consumer.
3. Immutability: Records cannot be altered once added to the blockchain.
4. Smart Contracts: Automate actions like payments or product verifications based on predefined conditions.

Procedure :

1. Identify supply chain participants (e.g., Farmer → Distributor → Retailer → Consumer).
2. Create a blockchain network to record product transactions at every stage.
3. Deploy a smart contract for product registration and ownership transfer.
4. Each transaction updates the product's status on the blockchain.
5. Consumers verify product authenticity by checking blockchain records.

Observation table:

S.No	Stage / Participant	Action Performed	Data Recorded on Blockchain	Verification Status	Remarks
1	Farmer	Registers new product batch	Product ID, Name, Origin, Harvest Date	✅ Verified	Product successfully added to ledger
2	Distributor	Updates logistics and shipment details	Product ID, Transport Info, Timestamp	✅ Verified	Shipment details stored immutably
3	Retailer	Receives goods and updates inventory	Product ID, Warehouse Info, Timestamp	✅ Verified	Product ready for sale

ASSESSMENT

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

Signature of the Student:
Name :
Regn. No.

Signature of the Faculty: