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 : Build a Use Case – Tokenized Supply Chain

* Coding Phase: Pseudo Code / Flow Chart / Algorithm

1. **Identify Participants:**
   Define all stakeholders — Manufacturer, Supplier, Transporter, Distributor, Retailer, and Customer.
2. **Token Creation:**
   Create digital tokens representing goods or product batches. Each token contains product ID, origin, and value.
3. **Smart Contract Setup:**
   Establish smart contracts that govern token transfer, payment release, and verification of product conditions.
4. **Product Registration:**
   The manufacturer registers the product by assigning tokens that represent the items being shipped.
5. **Token Transfer Through Supply Chain:**
   As the product moves through different stages, ownership of tokens is transferred from one participant to the next (e.g., Manufacturer → Supplier → Distributor → Retailer → Customer).
6. **Verification and Validation:**
   Each transfer is verified by the blockchain network to ensure authenticity and prevent double-spending of tokens.
7. **Automatic Settlement:**
   Once the product reaches the customer, smart contracts automatically release payment to the concerned parties.
8. **Record Maintenance:**
   All transactions remain permanently stored on the blockchain, providing complete transparency and traceability.

Software used:

1. VS Code.
2. MS Word.
3. Brave for researching.

*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

* Implementation Phase: Final Output (no error)

1. The supply chain participants are registered on the blockchain network.
2. The manufacturer issues **tokens** representing the goods to be shipped.
3. These tokens are transferred to the supplier upon material delivery confirmation.
4. As the goods move further, token ownership passes to the transporter, distributor, and retailer sequentially.
5. Each transfer is **recorded and validated** on the blockchain ledger.
6. Smart contracts automatically trigger payments once delivery terms are met.
7. The final customer receives both the **product** and its **digital ownership record (token)**.
8. The blockchain ledger now holds a **complete, verifiable history** of every transaction in the supply chain.

* Observations:

- Tokenization simplifies asset tracking and ensures product authenticity.
- Smart contracts reduce manual intervention and automate trust-based operations.
- Real-time data transparency enhances accountability between participants.
- Digital ownership tokens prevent duplication or counterfeit goods.
- Faster settlements and automated payments improve operational efficiency.
- Demonstrates how blockchain transforms traditional supply chains into digitally verified ecosystems.

*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

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:

**As applicable according to the experiment. Two sheets per experiment (10-20) to be used.*