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 Experiment: Chains Beyond Ethereum – Platform Comparisons

Algorithm / Procedure:

Start

Research multiple blockchain platforms other than Ethereum.

Identify their consensus mechanisms and performance metrics.

Deploy or simulate a simple smart contract on each network's testnet.

Compare transaction fees, block times, and developer tools.

Record results and note differences in architecture and usability.

End

Apparatus/Software Used:

- Remix IDE / Hardhat

- MetaMask

- Blockchain Explorers (BscScan, Polygonscan, Solscan)

Theory/Concept:

- Binance Smart Chain (BSC):

  Built for high-speed and low-cost transactions using Proof of Staked Authority (PoSA). Compatible with

  Ethereum Virtual Machine (EVM), making migration easy.

- Polygon (Matic):

  A Layer-2 scaling solution for Ethereum that offers faster and cheaper transactions while maintaining

  Ethereum security through sidechains.

Page No................
* As applicable according to the experiment.
Two sheets per experiment (10-20)

- Solana:

  Uses Proof of History (PoH) and Proof of Stake (PoS) for extremely fast transaction processing

  (up to 65,000 TPS). Suitable for NFTs and DeFi.

- Avalanche:

- Employs the Avalanche consensus protocol, known for high scalability and sub-second transaction finality.

  Supports multiple interoperable blockchains.

- Cardano:

- Based on Proof of Stake (Ouroboros) consensus. Focuses on academic research, scalability, and energy

  efficiency.

- Polkadot:

  Designed for cross-chain interoperability, allowing different blockchains to communicate through

  parachains.

Implementation Phase:

- Successfully deployed smart contract on testnets (BSC Testnet, Polygon Mumbai).
- Interacted with DApps using MetaMask multi-network configuration.
- Confirmed interoperability and performance improvement over Ethereum mainnet.

Observations:

- Non-Ethereum chains significantly reduce transaction cost and latency.

- EVM-compatible chains (BSC, Polygon, Avalanche) offer smoother migration from Ethereum.

- High-performance blockchains like Solana and Avalanche focus on scalability and real-time transaction validation.

- Each blockchain platform balances between speed, decentralization, and security in its own way.

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 :

Signature of the Faculty:

Regn. No. :

Page No............

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