Practical - 03.

* Aim: Write a smart contract on a test network for Bank account of a customer for following operations.
  - Deposit money.
  - Withdraw money.
  - Show balance.

* Theory:

1] Smart Contracts -

- A smart contract is a self executing program stored on a blockchain
- Automatically enforces rules and executes transactions without intermediaries.
- On Ethereum, smart contracts are written in solidity.

2] Ethereum Test Networks -

- Testnets like goerli, sepolia, or Ropsten, are used for testing contracts without using real ETH.

A.I.S.S.M.S
COLLEGE OF ENGINEERING
NO - 1, Kennedy Road, Near R.T.O Pune - 411001

- Metamask can be connected to a test net and funded with test ETH via faucets.

3] Bank account operations.

- Deposit money -
  - Users send ether to the contract.
  - Recorded in the user's balance.
  - Uses a payable function.
- Withdraw money -
  - Checks sufficient balance (require() statement)
  - Transfers ether back to the user.
- Show balance -
  - returns user balance in wei.

4] Steps to deploy and Test -

- Install metamask and connect to a test network.
- Obtain test ETH from a faucet.
- Open remix IDE -
- Create a new file and paste the solidity smart contract code.

A.I.S.S.M.S
COLLEGE OF ENGINEERING
NO - 1, Kennedy Road, Near R.T.O Pune - 411001

- Compile the contract using solidity compiler v0.8.x.
- Deploy with Injected Web3 (Metamask connected).
- Interact using REMIX UI -
  - Call deposit() with some ether.
  - Call withdraw(amount) to retriere funds.
  - Call showBalance() to check account balance.

5] Security and events -

- Mapping of address → balance ensures individual account separation.
- Events (Deposit, Withdrawl) - allow transperent tracking on the blockchain.
- Test first on a test network to avoid real ether loss.

* CONCLUSION:

- A smart contract for a customer bank account was successfully created and deployed on an Ethereum test Network.

→

A.I.S.S.M.S
COLLEGE OF ENGINEERING
NO - 1, Kennedy Road, Near R.T.O Pune - 411001

- The contract allows users to securely deposit and withdraw Ether, and view their balance.
- Basic Banking operations are automated on the blockchain with events for transperency and security.

* * * * * * * *