Modern Education Society's
Wadia College of Engineering, Pune

NAME OF STUDENT:	**CLASS:**
SEMESTER/YEAR:	**ROLL NO:**
DATE OF PERFORMANCE:	**DATE OF SUBMISSION:**
EXAMINED BY:	**EXPERIMENT NO:**

Assignment No. 6(Group -B)

Title: Write a program to implement link state /Distance vector routing protocol to find suitable path for transmission.

Objectives:

- Study of Link state and Distance Vector protocol
- Implement Link state / Distance vector routing protocol

Problem Statement:

Write a program to implement link state /Distance vector routing protocol to find suitable path for transmission.

Outcomes:

Understand the implementation of Link state and Distance vector routing protocols.

Tools Required:

Hardwar: Computer Systems, Network Infrastructure.

Software: python

Theory:

Link state routing is a technique in which each router shares the knowledge of its neighborhood with every other router in the internetwork.

The three keys to understand the Link State Routing algorithm:

- **Knowledge about the neighborhood:** Instead of sending its routing table, a router sends the information about its neighborhood only. A router broadcast its identities and cost of the directly attached links to other routers.
- **Flooding:** Each router sends the information to every other router on the internetwork except its neighbors. This process is known as Flooding. Every router that receives the packet sends the copies to all its neighbors. Finally, each and every router receives a copy of the same information.
- **Information sharing:** A router sends the information to every other router only when the change occurs in the information.

The Distance vector algorithm is iterative, asynchronous and distributed.

  - **Distributed:** It is distributed in that each node receives information from one or more of its directly attached neighbors, performs calculation and then distributes the result back to its neighbors.
  - **Iterative:** It is iterative in that its process continues until no more information is available to be exchanged between neighbors.
  - **Asynchronous:** It does not require that all of its nodes operate in the lock step with each other.
- The Distance vector algorithm is a dynamic algorithm.
- It is mainly used in ARPANET, and RIP.
- Each router maintains a distance table known as **Vector**.

Questions:

1. Link state and Distance vector routing protocols are which Layer Protocols as per OSI model?
2. Explain Link state protocol in brief?
3. Explain Distance Vector Routing protocol in brief.