Lab 6: Implementing Static and Dynamic Routing Protocols

Aim: Configure and compare static and dynamic routing protocols for network routing.

Objectives:

1. Setupstaticroutingbetweenmultiplenetworks.
2. Configureadynamicroutingprotocol(e.g.,OSPF)onrouters.
3. Compare static and dynamic routing performance.

Steps:

1. OpenCiscoPacketTracer:
   - ○ Createanewproject.

2. Add Devices:
   - ○ AddRouters: Drag multiple routers (e.g., 2911).
   - ○ AddPCs: Connect PCs to each router.

3. Configure Static Routing:
   - ○ AccesseachrouterCLIandconfigurestaticroutes:

   ```
   Router1> enable
   ```
   - ○ `Router1# configure terminal`
   - ○ `Router1(config)# ip route 192.168.2.0 255.255.255.0 10.0.0.2`
   - ○ `Router1(config)# exit`

4. Configure Dynamic Routing (OSPF):

   Access router CLI and configure OSPF:

   ```
   Router1> enable

   Router1# configure terminal

   Router1(config)# router ospf 1

   Router1(config-router)# network 10.0.0.0 0.0.0.255
   area 0
   Router1(config-router)# exit
   ```

5. Test Routing:
   - OnPCs,usethepingandtraceroutecommandstotestconnectivityand routing paths.