Important Networking & Troubleshooting Commands LINUX COMMANDS **1. ip a**
Definition: Displays all network interfaces and their IP addresses.
Use: To check IP, interface status, and connectivity.

2. ifconfig
Definition: Legacy command to show IP and interface details.
Use: To view or configure network interfaces.

3. ip route
Definition: Shows routing table.
Use: To verify default gateway and routing issues.

4. ping
Definition: Sends ICMP packets to check connectivity.
Use: To test if a host is reachable.

5. nslookup
Definition: DNS query tool.
Use: To troubleshoot DNS issues.

6. dig
Definition: Detailed DNS lookup tool.
Use: Used for deep DNS troubleshooting.

7. traceroute
Definition: Shows path packets take to reach destination.
Use: To find where the connection is failing.

8. netstat -tulnp
Definition: Displays listening ports and active connections.
Use: To check which services are running and their ports.

9. ss -tulnp
Definition: Modern replacement for netstat.
Use: Faster and more detailed port checking.

10. nc -zv
Definition: Netcat port checker.
Use: To test if a remote port is open or closed.

WINDOWS COMMANDS **1. ipconfig**
Definition: Shows basic IP information.
Use: To check IP, gateway, subnet.

2. ipconfig /all
Definition: Shows detailed IP configuration.
Use: To troubleshoot DHCP and DNS issues.

3. ipconfig /flushdns
Definition: Clears DNS cache.
Use: Fixes DNS resolution errors.

4. route print
Definition: Displays routing table.
Use: To find routing problems.

5. tracert

Definition: Windows traceroute.
Use: Shows network hops to destination.

6. netstat -ano
Definition: Shows active ports and associated process IDs.
Use: To detect port conflicts and malware connections.

NETWORK DEVICES (CISCO) **1. show running-config**
Definition: Shows active device configuration.
Use: To troubleshoot router/switch configuration.

2. show ip interface brief
Definition: Summarizes interface status and IPs.
Use: Quick health check of all interfaces.

3. show ip route
Definition: Displays routing table.
Use: To validate routes and network reachability.

4. show vlan brief
Definition: Shows VLAN configuration.
Use: Troubleshooting VLAN and switching issues.

TROUBLESHOOTING FLOW 1. Check IP: ip a
2. Ping gateway: ping <gateway>
3. Check routes: ip route
4. Check DNS: nslookup google.com
5. Test port: nc -zv <IP> <PORT>
6. Check services: systemctl status <service>