🔧 Lab Task – 01: Introduction to Networking, Topologies, and Basic Commands

🎯 Objective:

To familiarize students with the foundational concepts of networking, network topologies, and commonly used networking commands in Windows. Students will gain hands-on experience using CMD commands and develop an understanding of the roles and differences among networking devices.

🧪 Task 01: Exploring Basic Networking Commands via CMD

Objective:
Help students understand the function and output of essential networking commands used for troubleshooting and configuration.

Instructions:

1. Open the **Command Prompt (CMD)** as Administrator.
2. Run the following commands one by one.
3. Note the **Purpose** and **Observation** of each command after execution.

#	Command	Purpose	Observation
1	ipconfig		
2	ipconfig /all		
3	ping <IP>		
4	arp -a		
5	tracert <hostname>		
6	nslookup		
7	netstat -a		
8	netstat -r		
9	netview		
10	nbtstat -n		

🧪 Task 02: Network Topologies and Diagrams

Objective:
Help students understand different network topologies through diagrams and discussion.

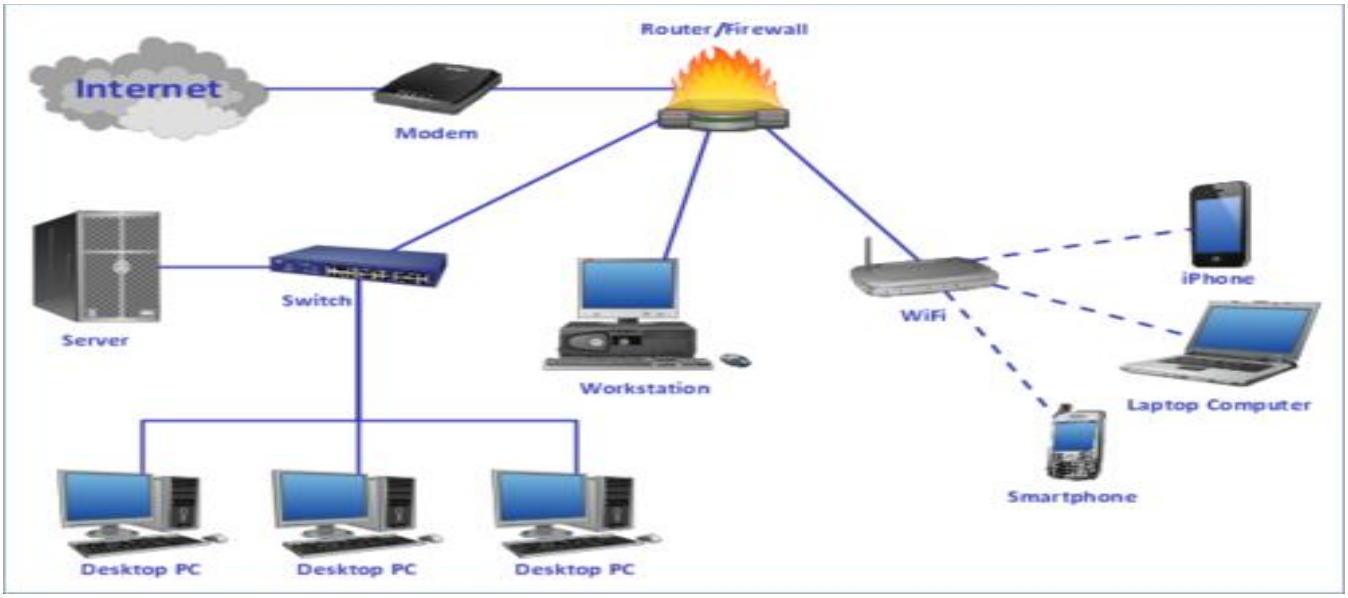
Instructions:

1. Briefly describe the following topologies:
    - **Bus Topology**
    - **Ring Topology**
    - **Star Topology**
    - **Mesh Topology**
    - **Hybrid Topology**

2. Draw a **hand-drawn or software-generated** diagram for **each topology**.
3. Submit labeled diagrams with explanation in your report.

🧪 Task 03: Networking Devices and Layers

Objective:
Distinguish between networking devices and identify the layers they operate in.



Instructions:

1. Fill in the following table:

End Devices	Intermediary Devices

2. Fill the differences:

Device	Function
Hub	
Switch	
Router	

3. Identify device layers:

Layer #	Layer Name	Devices Used
1		
2		
3		

🧪 Task 04: Application-Based Scenarios

Objective:
Test students' ability to apply concepts in real-world networking decisions.

Instructions: Answer the following multiple-choice questions and provide a brief explanation of your selected answer:

1. **Your department has 30 PCs that need to connect. Which device is suitable?**
    - a) Router
    - b) Firewall
    - c) Switch
    - d) Server
2. **You received a video from a friend's iPhone via AirDrop. His iPhone was acting as:**
    - a) Server
    - b) Client
    - c) LAN
3. **While watching YouTube on your PC, your system functions as:**
    - a) Server
    - b) End-Host
    - c) Client
4. **To connect multiple networks, your company should buy:**
    - a) Firewall
    - b) Host
    - c) LAN
    - d) Router

🧪 Task 05: Lab Documentation and Submission

Objective:
Ensure structured and reflective lab reporting.

Instructions:

1. Prepare a Word Document (minimum 3 pages) that includes:
    - Objectives of the lab
    - Screenshots and explanations of commands and tasks
    - Networking diagrams and device layer explanations
    - Application-based questions with reasoning
    - Reflections on learning
2. Use the official cover page as per instructor guidelines.
3. File Format: **.docx only** (PDF not accepted)
4. Folder Name: `2023-SE-[YourRollNo]_Lab_Task_01_CN`
5. Submission Deadline: As announced by the instructor.

📋 Instructor Evaluation Rubric for Lab 01

Criteria	Excellent (5)	Good (4)	Satisfactory (3)	Needs Improvement (2)	Not Completed (1)	Score
Command Outputs & Analysis	All correctly executed & analyzed	Minor issues	Some incomplete	Major inaccuracies	Task not done	
Topologies & Diagrams	Clear diagrams & correct descriptions	Small issues	Some topologies missing	Poor representation	Task not done	
Networking Devices & Layer Map	Accurate layer-device mapping	One device misplaced	Some confusion	Multiple errors	Task not done	
Scenario-based Responses	All MCQs with justified answers	One wrong/weak justification	Multiple errors	Poor reasoning	Task not done	
Documentation & Submission	Complete, on time, well-formatted	One format issue	Some content missing	Late or incomplete	Not submitted	

Total Score: _____ / 25

❗ Important Notes

Note I:
The use of **ChatGPT or any AI paraphrasing tool** for lab report completion is **strictly prohibited**. Plagiarism or AI-generated content will result in a **grade of zero**.

Note II:
Only **Word files (.docx)** are accepted. Submissions in **PDF or any other format will not be evaluated**.

Note – III:
The lab task will only be evaluated for students who attended the lab session. Students who were absent without prior intimation or a genuine reason will not have their lab tasks evaluated and will receive **zero credit** for that lab.
