**Module: 13- Networking with Windows Server**

**25. Role of Windows Firewall in Windows Server & How to Configure It**

**Role:**

* WindowsFirewall is a built-in security feature that filtersincomingandoutgoingtraffic based on configured rules.
* Helps protect the server against unauthorized access, malware, and network-based attacks.

**How to Configure:**

1. Open Windows Defender Firewall with Advanced Security.
2. Use Inbound Rules and Outbound Rules to allow or block specific ports/programs.
3. Click New Rule to create custom rules (by port, program, or predefined settings).

**26. What is Network Address Translation (NAT) in Windows Server & How to Configure It**

* NAT (Network Address Translation) allows multiple devices on a private network to share a single public IP address to access external networks (like the Internet).
* It is commonly used in Routing and Remote Access Service (RRAS).

How to Configure NAT:

1. Install Remote Access role and enable Routing.
2. Open Routing and Remote Access (RRAS) console.
3. Right-click the server > Configure and Enable Routing and Remote Access.
4. Choose NAT from the wizard options.
5. Select the public interface (connected to the Internet) and configure it for NAT.
6. Add private interfaces for internal network access.

**27. Explain DHCP and How to Configure It in Windows Server 2016**

DHCP (Dynamic Host Configuration Protocol):

* A protocol that automatically assigns IP addresses and other network settings (e.g., DNS, gateway) to devices on a network.

How to Configure DHCP in Windows Server 2016:

1. Install DHCP Role using Server Manager.
2. Open DHCP Manager from Tools.
3. Right-click the server > New Scope to define:
   * Scope name
   * IP address range
   * Subnet mask
   * Exclusions
   * Lease duration
4. Configure DNS, gateway, WINS options.
5. Activate the scope.
6. Authorize the DHCP server in Active Directory (if prompted).

**28. Describe the Process of Configuring DNS in Windows Server**

DNS (Domain Name System):

* Translates domain names (e.g., www.example.com) into IP addresses.
* Critical for Active Directory, internet access, and internal name resolution.

How to Configure DNS:

1. Install DNS Role via Server Manager.
2. Open DNS Manager from Tools.
3. Right-click Forward Lookup Zones > New Zone:
   * Choose Primary Zone
   * Define the zone name
4. Create A records (Host) to map hostnames to IPs.
5. Create Reverse Lookup Zone (optional) for IP-to-name resolution.
6. Ensure the DNS server is used by clients (via DHCP or manually).

**29. What is Server Manager & How to Use It**

Server Manager:

* A central management console in Windows Server used to manage local and remote servers.
* Helps install roles, monitor performance, and configure settings.

How to Use It:

* Add roles and features via the wizard.
* Use Dashboard to view server status.
* Add other servers to manage remotely (via IP or name).
* Access tools like DHCP, DNS, RRAS, and more.
* Monitor events, performance, and services centrally.

**30. Role of Remote Desktop Services (RDS) in Windows Server 2016/2019 & How to Configure It**

RDS (Remote Desktop Services):

* Allows users to access virtual desktops or remote apps hosted on a server.
* Enables centralized application and desktop delivery.

How to Configure RDS:

1. Install Remote Desktop Services via Server Manager.
2. Choose deployment type:
   * Standard Deployment (full deployment with RD Web, RD Gateway, etc.)
   * Quick Start (simplified setup for testing)
3. Configure Session Host, RD Licensing, and Connection Broker.
4. Publish RemoteApps or full desktops.
5. Users connect using Remote Desktop Client or RD Web Access.