Module 12: Installation, Storage, and Compute with Windows Server

1. What two options are provided in the type of installation window during Windows Server 2016 installation?

ANS: During the installation of Windows Server 2016, you are given two installation options:

- **Windows Server 2016 with Desktop Experience**: This option provides a full graphical user interface (GUI), including tools like Server Manager and other administrative utilities.
- **Windows Server 2016 Server Core**: A minimal installation that lacks a GUI and only provides a command-line interface (CLI) with PowerShell, reducing resource usage and attack surface.

2. How to configure a server step by step?

Step 1: Install Windows Server

- Boot from installation media.
- Select language, time, and keyboard input.

- Choose installation type (Desktop Experience or Server Core).
- Partition the disk and install Windows Server.

Step 2: Initial Configuration

- Log in using an administrator account.
- Configure basic settings (time zone, keyboard, language).

Step 3: Configure Network Settings

- Open **Network and Sharing Center**.
- Assign a static IP address.
- Configure DNS settings.

Step 4: Rename the Server

- Open **Server Manager > Local Server**.
- Click **Computer Name**, rename it, and restart.

Step 5: Activate Windows Server

- Go to **Settings > Activation**.
- Enter a valid product key.

Step 6: Configure Windows Updates

- Open **Windows Update settings**.
- Install security updates and patches.

Step 7: Install Roles and Features

- Open **Server Manager**.
- Click **Manage > Add Roles and Features**.
- Select required roles (e.g., Active Directory, DNS, DHCP).

Step 8: Configure Active Directory (if needed)

- Install the **Active Directory Domain Services (AD DS)** role.
- Promote the server to a domain controller.

Step 9: Configure Security Policies

- Set up user roles and permissions.
- Configure **Windows Firewall** and **Antivirus**.

Step 10: Backup Configuration

- Install and configure **Windows Server Backup**.
- Create a backup schedule.

3. What are the Pre-installation tasks?

ANS: Verify System Requirements (CPU, RAM, Storage).

- **Check Hardware Compatibility** with Windows Server 2016.
- **Plan the Server Role** (AD, DNS, File Server, etc.).
- **Backup Important Data** to prevent data loss.
- **Obtain Installation Media** (ISO or USB).
- **Check Network Configuration** (IP, Subnet, Gateway).
- **Decide Installation Type** (GUI or Server Core).
- **Ensure Licensing Compliance** for Windows Server.

4. What are the post-installation tasks?

ANS: Install Windows Updates.

- **Configure Network Settings**.
- **Activate Windows License**.
- **Rename Server & Assign Static IP**.
- **Install Server Roles and Features**.
- **Configure Security Settings (Firewall, Antivirus)**.
- **Create and Test Backup Plan**.
- **Monitor Performance Logs & Events**.

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5. What is the standard upgrade path for Windows Server?

ANS: The standard upgrade path ensures that you can upgrade Windows Server versions without losing data:

- **Windows Server 2012 → Windows Server 2016**
- **Windows Server 2016 → Windows Server 2019**
- **Windows Server 2019 → Windows Server 2022**

You cannot directly upgrade from **Windows Server 2008** to **2016**. Instead, you must first upgrade to **2012**, then proceed to **2016**.

6. What is the Physical Structure of Active Directory?

ANS: The **Physical Structure** of Active Directory (AD) refers to the **hardware and network configuration** that supports AD services. It consists of:

- **Domain Controllers (DCs)** – Servers that store and manage the AD database.
- **Sites** – A collection of **subnets** to optimize replication.
- **Subnets** – Define physical network boundaries.

- **Replication Links** – Ensure data synchronization between DCs.

7. What are the Logical Components of Active Directory?

ANS: The **Logical Components** of AD help organize users, computers, and resources within a network:

- **Forest** – The highest-level container that includes multiple domains.
- **Domain** – A group of objects (users, computers, printers) under a single administration.
- **Organizational Unit (OU)** – A subdivision of a domain used for better management.
- **Tree** – A collection of domains sharing a common namespace.
- **Objects** – Individual items in AD like users, computers, and groups.
- **Schema** – Defines object attributes (e.g., name, email).

8. What is the Full Form of LDAP?

ANS: LDAP (Lightweight Directory Access Protocol) is a protocol used to access and manage directory information, including authentication and authorization.

9. What is the location of the AD database?

ANS: The Active Directory database file is stored at:

📂 **C:\Windows\NTDS\ntds.dit**

10. What is a Child Domain Controller (Child DC)?

ANS: A **Child Domain Controller** is a **sub-domain** under a parent domain in a hierarchical AD structure.

- Example: If the parent domain is **corp.com**, a child domain could be **sales.corp.com**.
- It allows for distributed management and better security segmentation.

11. Explain the term Forest in AD?

ANS: A **Forest** in Active Directory is the **topmost logical structure** that contains one or more domains. It

provides a **security boundary** and allows different domains to communicate while maintaining **separate identities**.

- Example: A company may have **corp.com** and **hr.corp.com** in the same **forest**, enabling shared resources and authentication across domains

12. What is Active Directory? Check all that apply.

ANS: Active Directory (AD) is a directory service developed by Microsoft for Windows Server environments. It is used to store, manage, and organize information about users, computers, and other network resources within a domain. AD enables centralized authentication, authorization, and administration of resources in an enterprise network.

✅ **A Windows-only implementation of a directory server**

✅ **Microsoft's implementation of a directory server**

✅ **An LDAP-compatible directory server**

Explanation:
Active Directory (AD) is a **Microsoft-specific** directory service that is **not open-source** but follows the **LDAP (Lightweight Directory Access Protocol) standard** for authentication and directory management.

13. When you create an Active Directory domain, what's the name of the default user account?

ANS: ✅ **Administrator**

Explanation:
When an AD domain is created, the **default built-in user account** with administrative privileges is called **Administrator**.

- ❌ "Superuser" and **"Root"** are terms used in Unix/Linux systems.
- ❌ "Username" is a generic term and not an actual default account name.

14. AD domain provides which of the following advantages? Check all that apply.

ANS: ✅ **Centralized authentication**

✅ **More detailed logging**

✅ **Centralized management with GPOs**

Explanation:

- **Centralized Authentication:** AD allows users to log in once and access multiple resources via **Single Sign-On (SSO)**.
- **More Detailed Logging:** AD provides security logs that track user activities, logins, and administrative changes.
- **Centralized Management with GPOs (Group Policy Objects):** GPOs enable administrators to apply consistent security and configuration settings across all devices.
- ❌ **Better Performance** is NOT a primary AD feature. In some cases, centralized authentication may even add overhead compared to local authentication.

15. Minimum Hardware Requirements for Windows Server 2016

ANS: To install **Windows Server 2016**, your system must meet the following minimum requirements:

Component	Minimum Requirement
Processor	1.4 GHz 64-bit processor (x64)
RAM	512 MB (Server Core), 2 GB (Desktop Experience)
Disk Space	32 GB or more
Network	Ethernet adapter (1 Gbps recommended)
Other	DVD-ROM (if using DVD), USB (for bootable media)

For **better performance**, higher specifications (such as **4 GB RAM, 64 GB storage**) are recommended.

16. Editions of Windows Server 2016 & Features

ANS: Windows Server 2016 comes in several editions, each tailored for different use cases:

Edition	Features
Datacenter	Supports **unlimited VMs**, advanced networking, and storage features like **Shielded VMs** and **Storage Spaces Direct**.
Standard	Supports **up to 2 VMs**, includes **basic virtualization** and **networking capabilities**.
Essentials	Designed for **small businesses** (max 25 users, 50 devices), lacks advanced virtualization features.
Hyper-V	A free edition focused **only on virtualization**, with no traditional server roles.

17. Steps to Install Windows Server 2016 (GUI Mode)

ANS: 1 **Boot from Installation Media** (DVD/USB).
2 **Select Language, Time & Keyboard Layout**.
3 **Click "Install Now"**.
4 **Choose Windows Server 2016 with Desktop Experience**.
5 **Accept License Terms**.
6 **Select Installation Type**:

- **Upgrade** (if upgrading from an older version).
- **Custom** (for fresh installation).
  7 **Partition Disk**: Choose a drive and format if necessary.
  8 **Wait for Installation** to complete.
  9 **Set Administrator Password** after reboot.

🔟 **Log in and complete post-installation setup**.

18. Steps to Install Windows Server 2016 in Server Core Mode

ANS: 1 **Boot from Installation Media**.
2 **Choose Language, Time & Keyboard Settings**.
3 **Click "Install Now"**.
4 **Select "Windows Server 2016 Server Core"**.
5 **Accept License Agreement**.
6 **Choose "Custom Installation"** and select the disk partition.
7 **Complete Installation and Restart**.
8 **Log in with Administrator credentials**.
9 **Use PowerShell for further configuration** (e.g., sconfig to set hostname, network, updates).

19. Configuring Network Settings During Windows Server 2016 Installation

In GUI Mode:

ANS: Open **Control Panel > Network and Sharing Center**.

- Click **Change adapter settings**.
- Right-click **Ethernet > Properties**.
- Select **Internet Protocol Version 4 (TCP/IPv4)**.
- Assign **static IP, subnet mask, default gateway, and DNS servers**.

In Server Core Mode:

Use PowerShell:

powershell

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New-NetIPAddress -InterfaceIndex 2 -IPAddress 192.168.1.100 -PrefixLength 24 -DefaultGateway 192.168.1.1

Set-DnsClientServerAddress -InterfaceIndex 2 -ServerAddresses ("8.8.8.8","8.8.4.4")

20. Promoting a Windows Server to a Domain Controller (DC)

ANS: 1 Install **Active Directory Domain Services (AD DS)** role in Server Manager.
2 Click **Promote this server to a domain controller**.
3 Choose **Add a new forest** (if new domain) or **Add a domain to an existing forest**.
4 Specify **Domain Name (e.g., corp.local)**.
5 Set **Directory Services Restore Mode (DSRM) password**.
6 Configure DNS settings and NetBIOS name.
7 Review settings and start installation.
8 Reboot the server to complete domain controller setup.

21. Steps to Upgrade to Windows Server 2016

ANS: 1 **Check Compatibility** (ensure old OS is supported for direct upgrade).
2 **Backup System & Data**.
3 **Insert Installation Media** and run setup.exe.
4 **Select "Upgrade" Installation Type**.
5 **Follow prompts to complete upgrade**.
6 **Reboot the server** and verify all roles/services are functional.

22. What is Active Directory Domain Services (AD DS)?

ANS: AD DS is a role in Windows Server that allows centralized management of:

✅ Users & Computers
✅ Authentication & Authorization

✅ Group Policies

✅ Domain Controller Replication

Key Components:

- **Domain Controller (DC)** – Stores directory data and handles authentication.
- **Schema** – Defines object attributes (e.g., users, computers).
- **Global Catalog** – Enables searching across domains.
- **Organizational Units (OUs)** – Helps manage objects within a domain.

23. How to Create a New Active Directory User Account?

ANS: 1 Open **Active Directory Users and Computers (ADUC)**.
2 Navigate to **Users container** or a specific **OU**.

3 Right-click **New > User**.

4 Enter **username, first name, last name**.

5 Set **password & account policies**.

6 Click **Finish** to create the user.

PowerShell Command:

powershell

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New-ADUser -Name "John Doe" -SamAccountName jdoe -UserPrincipalName jdoe@domain.com -Path "OU=Users,DC=domain,DC=com" -AccountPassword (ConvertTo-SecureString "P@ssword1" -AsPlainText -Force) -Enabled $true

24. Creating and Managing Group Policy Objects (GPOs)

ANS: 1 Open **Group Policy Management Console (GPMC)**.

2 Navigate to **Group Policy Objects**.
3 Right-click **New GPO**, name it.
4 Edit the GPO using **Group Policy Management Editor**.
5 Configure settings (e.g., security policies, software deployment).
6 Link GPO to an **OU, domain, or site**.
7 Use gpupdate /force to apply changes.

25. What are Organizational Units (OUs) in AD?

ANS: ✅ OUs are containers within a **domain** that help organize **users, computers, and groups**.
✅ They allow **delegated administration** and **GPO application**.
✅ Example:

makefile

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Domain: corp.com

├── Sales OU

├── HR OU

├── IT OU

To create an OU:

powershell

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New-ADOrganizationalUnit -Name "Sales" -Path "DC=corp,DC=com"

26. Delegating Administrative Privileges in Active Directory

ANS: Delegation allows **junior admins** to manage specific AD tasks **without full domain control**.

Steps:

1 Open **Active Directory Users and**

Computers (ADUC).

2 Right-click an **OU** > Select **Delegate Control**.

3 Choose **Users or Groups** to delegate.

4 Select **Permissions** (e.g., Reset Password, Create Users).

5 Complete the wizard to apply changes.

PowerShell Command:

powershell

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dsacls "OU=Sales,DC=corp,DC=com" /G "HelpDesk:RPWP"