Chapter # 3
Chapter 3 – Installation and Configuration

✅ **Part I: Short Questions**

Q1. Define server?

- A **server** is a powerful computer that provides services, resources, and data to other computers (clients) in a network.

- Example: A Windows Server providing file storage, printing, and authentication.

Q2. Describe hardware requirement for a Server.

- Typical requirements for Windows Server 2008 R2:

    1. Processor: 1.4 GHz (x64).

    2. RAM: 2 GB minimum.

    3. Hard Disk: 40 GB or more.

    4. NIC (Network Interface Card).

    5. DVD-ROM or bootable USB.

Q3. What is an Active Directory?

- A **directory service** in Windows Server that stores information about network objects like users, groups, and computers.

- Used for centralized authentication and resource management.

Q4. Describe hardware requirement for an Active Directory.

1. Minimum 2 GB RAM (4 GB recommended).

2. Processor: 2 GHz or higher.

3. Disk space: 40 GB for system + 200 MB for AD database.

4. NIC for domain communication.

Q5. Describe Active Directory Domain Services roles.

- **AD DS Roles:**

    1. Stores directory data.

    2. Handles authentication (logins).

    3. Manages users, groups, and policies.

    4. Provides centralized security.

Q6. Define Network Address Translation (NAT).

- NAT is a process of **translating private IP addresses into public IP addresses** for Internet communication.

- Example: Multiple PCs in a lab share one public IP to access the Internet.

Q7. Describe virtual machine environment.

- A **virtual machine (VM)** is software that allows multiple operating systems to run on a single physical machine.

- Example: Running Windows Server 2008 inside VMware or VirtualBox.

Q8. Define DNS server.

- **Domain Name System (DNS)** server translates domain names (e.g., google.com) into IP addresses (e.g., 142.250.190.78).

Q9. Describe print server management.

- A **print server** manages printers and print jobs in a network.

- It allows sharing printers with multiple clients and setting permissions.

Q10. What is offline file management?

- A Windows feature that allows files stored on a server to be available to users even when they are **offline**.

- Synchronization occurs when reconnected.

✅ **Part II: Long Questions**

Q1. Write down the installation process of Windows Server 2008 R2.

1. Insert bootable DVD/USB and boot system.

2. Select language, time, and keyboard settings.

3. Click **Install Now**.

4. Choose Windows Server 2008 R2 edition.

5. Accept license terms.

6. Select **Custom Installation**.

7. Choose disk partition.

8. Installation begins → System restarts.

9. Configure administrator password.

10. Login and configure roles/features.

Q2. Write down the installation steps of Active Directory.

1. Open **Server Manager → Roles → Add Roles**.

2. Select **Active Directory Domain Services (AD DS)**.

3. Follow wizard → Install.

4. Run **dcpromo** command.

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5. Create a new forest/domain.

6. Set domain name (e.g., example.com).

7. Configure DNS and database paths.

8. Set Directory Services Restore Mode password.

9. Restart server → Domain Controller ready.

Q3. Write down the de-installation steps of Active Directory.

1. Run **dcpromo** command.

2. Choose "Delete this domain controller".

3. If last DC → Remove forest.

4. Provide admin password.

5. Demote the server.

6. Restart system → AD removed.

Q4. Write a short note on Network Address Translation (NAT).

- NAT allows private IP addresses in a LAN to access Internet using a single public IP.

- **Types:**

    1. Static NAT – One private ↔ one public IP.

    2. Dynamic NAT – Maps private IPs to a pool of public IPs.

    3. PAT (Port Address Translation) – Many private IPs share one public IP (most common).

- **Advantages:**

    o Conserves IP addresses.

    o Provides security by hiding internal IPs.

🌟 **Extra Important Questions**

Q1. What is DHCP?

- **Dynamic Host Configuration Protocol**, automatically assigns IP addresses to clients.

Q2. Difference between Workgroup and Domain.

- **Workgroup:** No central server, standalone PCs.

- **Domain:** Centralized with Active Directory.

Q3. What is Group Policy in Windows Server?

- A feature of Active Directory to manage and enforce security settings across all clients.

Q4. What is RAID?

- **Redundant Array of Independent Disks**, used for fault tolerance and performance in servers.