**Question 1: How would you create two Azure VMs, one with a static public IP and the other with a dynamic public IP, in the same Virtual Network? Provide the Azure CLI or PowerShell commands you would use.**

**Answer:**

To create two Azure VMs, one with a static IP and the other with a dynamic IP, in the same virtual network involves a series of steps:

**Step 1: Create a Resource group**

A resource group is created to hold all the related resources. This provides a logical container for managing and organizing resources.

**Step 2: Create a virtual network and subnet**

A Vnet which has different address space has been created, and within this VNet, a subnet has been created which has it’s own address range.

**Step 3: Create public IP Address**

Two public IP addresses has been created:

1. Static public IP address
2. Dynamic public IP address

**Step 4: Create Network security group**

An network security group has been created to define security rules that will control the traffic.

**Step 5: Create Network Interfaces**

Two network interfaces have been created:

1. For the static public IP address
2. For the dynamic public IP address

**Step 6: Create Virtual Machine**

Two virtual machines have been created and connected to respective network interfaces:

1. For the static public IP address
2. For the dynamic public IP address

**PowerShell commands to create Azure virtual machine**

1. **Login to Azure**

Connect-AzAccount

1. **Create a resource group:**

New-AzResourceGroup -Name myResourceGroup -Location eastus

1. **Create a virtual network:**

$vnet = New-AzVirtualNetwork -ResourceGroupName myResourceGroup -Location eastus -Name myVnet -AddressPrefix 10.0.0.0/16

$subnet = Add-AzVirtualNetworkSubnetConfig -Name mySubnet -AddressPrefix 10.0.0.0/24 -VirtualNetwork $vnet

$vnet | Set-AzVirtualNetwork

1. **Create a Static public IP:**

$staticPublicIP = New-AzPublicIpAddress -ResourceGroupName myResourceGroup -Name myStaticPublicIP -AllocationMethod Static -Location eastus

1. **Create a dynamic public IP:**

$dynamicPublicIP = New-AzPublicIpAddress -ResourceGroupName myResourceGroup -Name myDynamicPublicIP -AllocationMethod Dynamic -Location eastus

1. **Create a network security group:**

$nsg = New-AzNetworkSecurityGroup -ResourceGroupName myResourceGroup -Location eastus -Name myNetworkSecurityGroup

1. **Create network interface for virtual machine(Static public IP address):**

$nicStatic = New-AzNetworkInterface -ResourceGroupName myResourceGroup -Name myNicStatic -Location eastus -SubnetId $subnet.Id -PublicIpAddressId $staticPublicIP.Id -NetworkSecurityGroupId $nsg.Id

1. **Create network interface for virtual machine(Dynamic public IP address):**

$nicDynamic = New-AzNetworkInterface -ResourceGroupName myResourceGroup -Name myNicDynamic -Location eastus -SubnetId $subnet.Id -PublicIpAddressId $dynamicPublicIP.Id -NetworkSecurityGroupId $nsg.Id

1. **Create virtual machine(Static Public IP address):**

New-AzVm -ResourceGroupName myResourceGroup -Name myVMStatic -Location eastus -VirtualNetworkName myVnet -SubnetName mySubnet -SecurityGroupName myNetworkSecurityGroup -PublicIpAddressName myStaticPublicIP -OpenPorts 22

1. **Create virtual machine(Dynamic Public IP address):**

New-AzVm -ResourceGroupName myResourceGroup -Name myVMDynamic -Location eastus -VirtualNetworkName myVnet -SubnetName mySubnet -SecurityGroupName myNetworkSecurityGroup -PublicIpAddressName myDynamicPublicIP -OpenPorts 22