**Q2 - SCENARIO**

Macro Life, a healthcare company has recently setup the entire Network and Infrastructure on Azure.

The infrastructure has different components such as Virtual N/W, Subnets, NIC, IPs, NSG etc.

The IT team currently has developed PowerShell scripts to deploy each component where all the properties of each resource is set using PowerShell commands.

The business has realized that the PowerShell scripts are growing over period of time and difficult to handover when new admin onboards in the IT.

The IT team has now decided to move to ARM based deployment of all resources to Azure.

All the passwords are stored in a Azure Service known as key Vault. The deployments needs to be automated using Azure DevOps using IaC(Infrastructure as Code).

1. *What are different artifacts you need to create - name of the artifacts and its purpose*

* Two types of files we will be creating
  + Azuredeploy.json – this file is the main file which contains all the resources
  + azuredeploy.parameters.json – this file is used when we want to pass the input manually

1. *List the tools you will to create and store the ARM templates*

* We can create ARM templates in visual studio or visual studio code (Azure Resource Manager Extension)
* We can store the ARM Templates in Azure Artifacts, storage account and Azure Templates
* We are run the ARM Templates using powershell, Azure DevOps Pipeline and Azure Templates

*3) Explain the process and steps to create automated deployment pipeline.*

* Create service connection for the subscription
* Use below task for in the pipeline for the deployment in the subscription   
    
   - task: AzureResourceManagerTemplateDeployment@3

inputs:

deploymentScope: 'Resource Group'

azureResourceManagerConnection: '’#subscription name

subscriptionId: ‘’#subscription id

action: 'Create Or Update Resource Group'

resourceGroupName: ‘’ # Resource Group

location: ‘’ # location of the resource group

templateLocation: 'Linked artifact' # Linked Artifact if the location of arm templates is build artifacts

deploymentMode: 'Incremental'

 csmFile: 'templates' # path of the templates file

    csmParametersFile: '- artifacts kk' # override parameters if required

we can add Azure CLI and az-powershell tasks in the pipeline  
*4) Create a sample ARM template you will use to deploy a Windows VM of any size*

* File is attached separately

*5) Explain how will you access the password stored in Key Vault and use it as Admin Password in the VM ARM template.*

* At the time of creation, click on the check box in enable access to with Azure Resource Manager for template deployment
* Go to access policies in the existing keyvalut under enable access, select Azure Resource Manager for template deployment
* Get the password at runtime, by taking reference to the key vault, below snipped is from the parameters section

"AdminPassword": {

"reference": {

"keyVault": {

"id": "/subscriptions/$(subscriptionid)/resourceGroups/AzureAcademy/providers/Microsoft.KeyVault/vaults/$(Keyvalut name)"

},

"secretName": "DefaultPassword"

}