TERM-3

Microsoft server Assignment

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

# Install Windows Servers 2016

1. Windows Server 2016 installation requirements
   1. Processor-1.4Ghz 64-bit, RAM-512MB, Disk space-32 GB, network Gigabit Ethernet adapter, OS of server 2019 for practice.
2. Describe Windows Server 2016 editions
   1. Window server 2016 is available in 3 editions [a foundation edition as it was in windows server 2012 is no longer offered by Microsoft for window server 2016].
3. From which menu we can add and remove server roles?
   1. On the Manage menu in server manager, click add rles and features.
4. What is workgroup?
   1. In computer network a work group is collection of computer connected on LAN that share the common resources and responsibilities, Workgroup is microsoft’s term for a peer local area network.
5. What is domain?
   1. A domain is a logical grouping of computers, The computer ina domain can share physical proximity on a small LAN or they can be located in different parts of the world, as long as they can communicate, their physical location is irrelevant.
6. What is powershell?
   1. Powershell is a cross-platform task automation solution made up of a command-line shell, a scripting language, and a configuration management framework.
7. up gradation v/s migration
   1. A migration is a direct translation of previous control system onto a new one, while an upgrade introduces new features, modernization, or other innovative technologies.
8. license and activation model
   1. The three basic rules that you must adhere to with the core-based licensing model are as follows:

Every processor must be licensed to cover a minimum of 8 cores. Every server must be licensed to cover a minimum of 16 cores. All physical cores in a server must be licensed.

1. Precaution of up gradation
   1. Back-up everything you can go to the cloud storage route or create a physical back-up with an external hard drive or USB flash drive.
2. Migration limitation
   1. Lack of common sense, No IQ, No Felling, No thinking capability, NO Decision Making Ability, NO learning power, User dependent, No implementation power
3. What is the advantages of server core
   1. It reduced attack surface, Because server core installation are minimal, there are fewer application running on the server, which decreses the attack surface. Reduced management.
4. What is Nano server
   1. Nano server is a remotely administered server operating system optimized for private clouds and datacenters.
5. Purpose of Nano server
   1. It is similar to window server in server core mode, but significantly smaller, has no local logon capability, and only support 64-bit application, tools, and agents.
6. Compare GUI v/s core v/s Nano server
   1. The main difference between the Server with Desktop Experience installation option and Server Core is that **Server Core does not include the following GUI shell packages**: Microsoft-Windows-Server- Shell-Package. Microsoft-Windows-Server-Gui-Mgmt-Package. Microsoft-Windows-Server-Gui-RSAT-

Package.

## Practical

* + 1. Install server 2016 GUI
    2. Install server 2016 server core
    3. Assign dual IP address on lan card
    4. Upgrade server 2012 to server 2016
    5. Change computer name
    6. install nano server
    7. manage and configure a nano server
    8. configure network in nano server
    9. join nano server in domain

A. DONE ALL

# Storage solution

1. compare GPT and MBR
   1. A choice betwn MBR and GPT depends on the number of partitions one wants to create. MBR has a limitation of only up to 4 primary partitions, whereas GPT allows the creation of up to 128 primary partitions. So, GPT is the most suitable choice if more partitions are to be created.
2. different between VHD and VHDX
   1. once mounted, a VHD disk image appears to windows as a normal hard disk that’s physical connected to the system

VHDX images are functionally equivalent to VHD images, but they include more modern features, such as support for larger sizes and disk resizing.

1. what is SMB and NFS
   1. Network file system [NFS] server message block [SMB] and common interner file system [CIFS] are all files access storage protocol, used to access files on remote servers and storage servers [such as NAS storage] as if they were local files.
2. what is sharing permission
   1. The share permissions need to allow the administrators and site accounts to access the content. The physical path will be retricted to actual needed permission. E:\content [physical path of share] Administrators – Full control system –Full control. This is the folder that is shared.
3. what is NTFS permission
   1. NTFS permission are used to manage access to the files and folders that are stored in NTFS file system. To see what kind of permission yu will be extending when you shared a file or folder.
4. what is resource ownership
   1. Resource ownership is the creation of a job match for a consumer, which is consistent with the consumer’s strengths, resources, priorities, concerns, abilities, capabilities, interests, and formed choice, through the purchase of equipment and materials creating an opportunity for an individual to be hired.
5. what is storage pool

A. Storage pools are capacity aggregated from disparate physical storage resources ina shared storage environment, storage pools can be configured in varying sizes and provide a number of benefits, including performance, management and data protection improvements.

1. what is basic disk and dynamic disk
   1. A basic disk using the GPT partition style can have up to 128 primary partitions, while

dynamic disk will have a single LDM partitions as with MBR partitioning.

1. what is simple volume , spanned volume
   1. A spanned volume combines ares of unallocated space from multiple disks into one logical volume. Allowing you to more efficiently use all of the space and all the drive letters on a multiple-disk system.
2. describe RAID 0 , RAID 1 , RAID 5, RAID 6 , RAID 1 0
   1. In a RAID 0 system, data are split up into blocks that get written across all the drives in the array.

* RAID 1 is a setup of at least two drives that contain the exect same data.
* RAID 5 requires the use of at least 3 drives, striping the data across multiple drives like

RAID 0.

* RAID 6 like RAID 5, but the parity data are written to two drivers.
* RAID 10 consists of a minimum for four drives and combine the advantages of RAID 0 and

RAID 1 in one single system.

# Implement Hyper-V

* + 1. what is virtualization
       1. Virtualization is technology that lets you create useful IT services using resources that are traditional bound to hardware.
    2. type of virtualization and compare it
       1. There are two type of method: local and remote

Local and remote desktop virtulization are both possible depending on the business needs however, local desktop virtulization has many limitation the inability to use a mobile device to success the network resource.

* + 1. Describe hyper v
       1. Hyper-v is microsoft’s hardware virtulization product. It lets you create and run a software version of a computer, called a virtual machine.
    2. what is remote management of hyper v
       1. This lets you connect to the hyper-v host when you’re not running on the local computer as a user that’s a member of either the hyper-v.
    3. what is hyper v manager

A. Microsoft Hyper-V manager is an administrator tool to create, change and delete virtual machine [VMs]. An administrator can manage a local Hyper-V host and a limited number of remote hosts from a single Hyper-V manage tool.

* + 1. what is virtual machine and nested virtualization
       1. Nested virtualization lets you run virtual machine [VM] instances inside of other VMs so

you can create your own virtualization environments.

* + 1. what is dynamic memory
       1. Dynamic memory is the memory accessible and utilized during a system’s runtime, Explore the defining aspects of dynamic memory allocate, the four functions of dynamic memory in C programming, and the function of malloc, calloc, realloc, and free.
    2. what is NUMA
       1. Non-uniform memory access, or NUMA is a method of configuring a cluster of microprocessors in a multiprocessing system so they can share memory locally. The idea is to improve the system’s performace and allow it to expand as processing needs evolve.
    3. describe Virtual Machine functions
       1. A virtual Machine [vm] is a compute resource that uses software instead of physical computer to run programs and deploy apps.
    4. describe Hyper v functions
       1. Hyper-V is Microsoft’s hardware virtualization product. IT lets you create and run a software version of a computer, called a virtual machine.

## Practical

* + - * 1. install hyper v and configure a virtual switch
        2. install virtual machine and install windows 10
        3. create a checkpoint
        4. P4 create a virtual hdd (vhd) and attach to virtual machine

A. DONE ALL

# Windows containers

1. describe containers
   1. Containers are packages of software that contain all of the necessary elements to run in any environment. In this way, containers virtualize the operating system and run anywhere.
2. what is docker?
   1. Docker is an open platform for developing, shipping, and running application. Docker enables you to separate your application from your infrastructure so you can deliver software quickly.
3. hyper v containers and windows containers
   1. Hyper-V containers are slower than windows containers as they run a thin OS. Windows containers are suitable for general purpose workloads in private clouds or single for highly secure workloads.

## Practical

* + 1. install windows container
    2. install container in core server

A. DONE ALL