Jetking®

The Guide

FINISHING SCHOOL SPECIAL BATCH V3.1

A Complete Technical Refresher

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PC Hardware

1- What are the components of a Computer?

Ans- The components of a computer are Processor, RAM, Motherboard, SMPS, Hard Disk and Input Output Devices.

2- What are the input devices? Tell me any 3.

Ans- The devices through which processor receive the instructions are called input devices. Mouse, Keyboard and scanner are basic input devices.

3- What are the output devices? Tell me any 3.

Ans- The devices on which the processor sends the output are called output devices. Monitor, Printer and Speaker are basic output devices.

1- What is a processor?

Ans- A processor is the main component of the computer which accepts the instructions from the input devices, process on that instruction and sends the output to the output devices.

2- Which is the latest processors of Intel?

Ans- core i9 (Released-Quarter-3 2017) is the latest processor of Intel.

3- Which is the latest processors of AMD?

Ans- AMD **Ryzen** is the latest processor of AMD.

4- How many physical cores are there in Intel core i-3, i-5, i-7 and i9.

Ans- i3- 2 Physical Cores, i5- 2 or 4 Physical Cores, i7- 4 Physical Cores and i9 has 10-18 physical Cores

5- What is cache memory?

Ans- Cache memory is a small and fast memory which is placed between Processor and RAM. Cache memory stores the instruction from the RAM so that processor does not have to traverse RAM to get the instruction.

6- What are EDB, EIST, Turbo Boost, Hyper-Threading, Smart Cache and virtualization?

EDB- Execute Disable Bit is an Intel Hardware based security feature that help to secure computer from viruses and malicious.

EIST- Enhanced Intel Speed Step Technology allows the system to dynamically adjust processor voltage and frequency according to requirement.
Turbo Boost- It is new feature of Intel latest processors which automatically allows processor cores to run faster than the base operating frequency.
Hyper Threading- Hyper threading enables a single processor to work as logically 2 processor. It was launched with Pentium-4 Processor.
Smart Cache- Smart Cache allows each core of processor to dynamically utilize up to 100% of available cache memory.
Virtualization- It is a technology used to run multiple virtual machines on a single physical machine.

7- What are FSB, DMI and QPI?

FSB- Front Side Bus connects Microprocessor to RAM through North Bridge.

DMI- Direct Memory Interface is a feature of computer systems that allows certain hardware subsystems to **access** main system **memory** (RAM) independently of the central processing unit (CPU).

QPI- Quick Path Interconnect (**QPI**) is a point-to-point processor **interconnects** developed by Intel which replaced the front-side bus (FSB).

1- What is the Difference between Volatile and Non-Volatile Memory?
Ans- Volatile memory is temporarily storage and can store data until it is receiving power whereas Non Volatile stores data permanently even after turning off the power.

2- What is SRAM?
Ans- Static Random Access Memory is a volatile memory that retains data bits in its memory and does not have to periodically refreshed. **Cache memory** is the example of SRAM.

3- What is DRAM?

Ans- Dynamic Random Access Memory is a volatile memory that stores data bits in cells and have to periodically refreshed. **System Memory** is the example of DRAM.

4- RAM Comparison

RAM	Total Pins	Frequency Range	Operating Voltage
DDR-1	184	266-400 MHz	2.5 Volt
DDR-2	240	533-800 MHz	1.8 Volt
DDR-3	240	1066-1866 MHz	1.5 Volt
DDR-4	288	2133-4266 MHz	1.2 Volt

5- What is ROM?

Ans- Read Only Memory (ROM) is Non Volatile memory which stores data permanently. The Data in ROM can only be read but cannot be modified.

6- What are the types of ROM?

Ans- The type of ROM are **PROM** (Programmable Read-Only Memory)**, EPROM** (Erasable Programmable Read Only Memory) **and EEPROM** (Electrically Erasable Programmable Read Only Memory)**.**

1- What is the Motherboard?

Ans- Motherboard is the most important components of the computer which connects all the components together and passes the required voltage to all the devices.

3- What are North Bridge, South Bridge, ICH and Super I/O Chip?

North Bridge- Northbridge controls the interaction of processor with the System Memory (RAM).

South Bridge- South Bridge controls the interaction of processor with Input/output Controllers and Expansion slot such as PCI and AGP slots.

ICH- Input/output Controller Hub is an Intel microchip which is use to connect and control peripheral devices.

Super I/O Chip- Super I/O chip is a single chip which controls slower I/O devices which are not controlled by South Bridge.

- **Define Following**
  a) **PCI**- **Peripheral Component Interconnect** is a 32-bit wide bus which is used to attaching expansion card on the motherboard such as LAN Card, Sound Card and Internal Modem.
  b) **AGP**- Accelerated Graphics Port is dedicated to attach graphics card on the motherboard.
- **What is Jumper**

Ans- Jumpers are the small pins used to configure motherboard and other devices like Hard Disk Drive and CD/DVD.

- **What is SMPS?**

Ans- Switch Mode Power Supply provides the regulated DC voltage to all the component of a computer.

- **What are the Output Voltages of power supply?**

Ans- The output voltage of power supply are +12V, -12V, +5V, -5V and 3.3V.

- **What are the power supply control Signals?**

Ans- Following are the control signal of power supply

a) **PG Signal (Gray +5V) -** it indicates to motherboard that all the supplies voltage (+12V, -12V, +5V, -5V, 3.3V) are at proper level.
b) **PS_ON Signal (Green +5V) -** It is used to power on and power off the SMPS unit.
c) **Standby Signal (Violet +5V) -** It keeps the power supply in standby mode if input AC is active even the system is turned off.

Complete the following

Wire Color	Voltage	Use For
Blue	-12V	Provides power to serial ports.

Yellow	+12V	Provides power to the motors.
Red	+5V	Provides power to Logic cards and SIMM slots.
Orange	3.3V	Provides power to processor, Expansion slots and DIMM slots.
White	-5V	Provides power to floppy controllers and ISA slots.
Black	0V	It is used for grounding.

- **How to check power supply?**

Ans- If the SMPS fan is working fine after shorting the PS_ON signal (Green) with any Ground (Black), initially the SMPS is working fine.

- **What are Molex and Mini-Molex power connectors?**

Ans- Molex power connector provides power to the Hard Disk Drive and Optical Disk Drive whereas Mini-Molex is used to provide power to floppy drive.

- **What is Hard Disk?**

Ans- A hard disk is the primary permanent storage device which hosts the operating system as well as data.

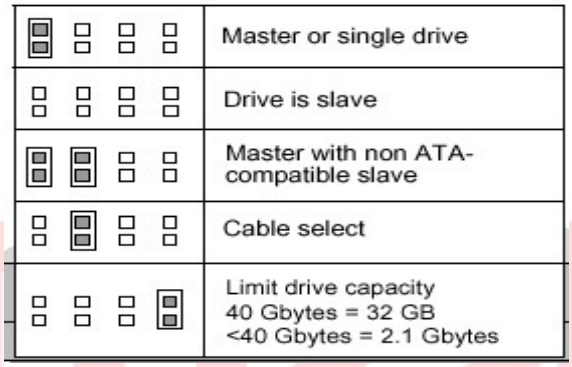
- **What are the different types of HDD?**

Ans- The different types of hard disk drives are IDE/ATA, SATA, SCSI and USB.

Complete the following

HDD Type	Transfer Rate	Pins
ATA-6	100 MB/Sec	40/80
ATA-7	133 MB/Sec	80 Pins
SATA 1.5	150 MB/Sec	7
SATA 3.0	300 MB/Sec	7
SATA 6.0	600 MB/Sec	7
USB 2.0	60 MB/Sec	4
USB 3.0	625 MB/Sec	4

- **How to configure jumper setting of hard Disk?**



- **What is RPM? What are different RPM in HDD?**

Ans- Revolution Per Minute defines that how many times the platter of the drive completes 360^0 turn in one minute. Faster RPM means better read write performance of the drive. Different RPM of the hard drives are 5400, 5900, 7200 and 10000.

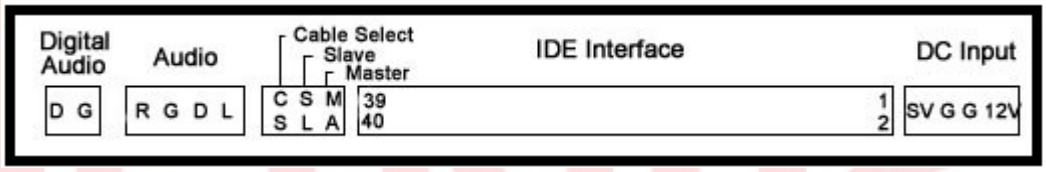
- **What are different types of CD Drives?**

Ans- The different types of CD drives are CD-ROM Drive, CD-R Drive and CD-RW Drive.

- **What is Combo Drive?**

Ans- Combo drive can read and write CD Disk but can only read DVD Disk.

- **How to configure jumper setting of the CD and DVD?**



- **What is capacity of Blu-Ray Disk?**

Ans- Single layer Blu-Ray disk can store up to 25 GB and dual layer can store 50 GB.

- **How to write CD and DVD through Nero?**

Ans- Practical…….

- **How to create ISO image through Power ISO?**

Ans- Practical…….

- **What are the deferent types of Monitors?**

Ans- The different types of monitor are CRT, TFT, LCD, LED and plasma.

- **What is Pixel?**

Ans- Pixels are the tiny dots (.) on the screen. The more number of pixels means the more clarity.

Complete the following

Standard	Resolution
VGA	640*480
SVGA	800*600
XGA	1024*768
WXGA	1280*800
UXGA	1600*1200

- **What is the use of Input/output ports in a computer?**

Ans- Input/output ports are use to connect peripherals devices to a computer.

Complete the following

Port	Pins
Serial	9
Parallel	25
USB	4
PS/2	6
VGA	15
DVI	24
HDMI	19

- **What is IRQ?**

Ans- Interrupt Request are the line numbers provided to I/O ports and device controllers through which processor understands from which port the input is received and to which port the output to be send.

- **What is Printer?**

Ans- Printer is an output device which converts soft copy into hard copy.

- **What are the types of Printer?**

Ans- There are 2 types of printer**s**

a) **Impact Printer: -** These are the printers where a physical contact is established between the paper and the print head. Dot Matrix printer is a type of Impact Printer.
b) **Non-Impact Printer: -** These are the printers where a physical contact is not established between paper and print head**.** Inkjet and LaserJet are the type of Non-Impact printer.

- **How many pins are there in the head of Dot-Matrix Printer?**

Ans- There are 9 to 24 pins in the head of dot matrix printer.

- **How to Install a Local Printer?**

Ans- Practical…….

- **How to share a Printer?**

Ans- Practical…….

- **How to install Network Printer?**

Ans- Practical…….

- **How to access shared printer?**

Ans- Practical…….

- **What is scanner?**

Ans- Scanner is an input device which converts a hard copy into soft copy.

- **What are the types of Scanner?**

Ans- The type of scanner are Flatbed Scanner, Sheet Fed Scanner, Slide Scanner and Drum Scanner.

- **How to scan documents with a scanner?**

Ans- Practical…….

- **What is BIOS?**

Ans- Basic Input Output System is a program or firmware which is loaded in CMOS chip located on the motherboard. It performs the basic maintenance of the system by checking all the hardware connected to the system and loads the operating system.

- **What is POST?**

Ans- POST (Power On Self Test) is a 14 series test performed by BIOS to test the hardware components of the computer.

- **How to set boot priority in BIOS?**

Ans- Practical……

- **How to upgrade BIOS firmware?**

Ans- Practical……

- **How to reset BIOS settings?**

Ans- BIOS settings can be reset by removing CMOS battery and RTC jumper from the motherboard.

- **What is the voltage of CMOS battery?**

Ans- The Voltage of CMOS battery is 3V (DC).

Hardware Troubleshooting Questions

1-No power
2-No Display
3-Continue beep sounds
4-BSOD (Blue Screen of Death)
5-No Audio
6-Over Heating
7-CMOS checksum error
8-BIOS reset after restarting PC
9-Select Proper boot media
10-Hardware not detected
11-Frequent Restart

What is the full form of…….

FSB	BSB	DMI	QPI	IOH	ICH	PDA
CPU	AMD	HT	EDB	EIST	PGA	LGA
ZIF	LIF	CMOS	BIOS	POST	RAM	DRAM
SRAM	SDRAM	RDRAM	DDR	ROM	PROM	EPROM
EEPROM	CD	DVD	PCB	AGP	PCI	SIMM
DIMM	RIMM	PCISIG	AMR	VRM	IDE	ATA
SATA	USB	VGA	SVGA	XGA	LED	LCD

TFT	CNR	AMR	AT	ATX	SMPS	PSU
RPM	PATA	ATAPI	ANSI	UDMA	SCSI	ODD
CRT	DVI	HDMI	UART	SPP	EPP	ECP
IEEE	IRQ	MIDI	DDWP	SSD	SODIMM	LPT
DMP	ADC	ALU	ESD	SMART	PCMCIA	VT

Operating System

1- What is Operating System?

Ans- An operating system (OS) is system software that manages computer hardware and software, it acts as an intermediate between user and hardware.

2- What is Client Operating System? Tell me the name of Client OS?

Ans- An operating system which can be use as individual or can uses the services provided by servers is called client operating system. Windows-98, Windows 2000 professional, Windows-XP, Windows-Vista, Windows-7, Windows-8, Windows-8.1 and Windows-10 are the client operating systems of Microsoft.

3- What is Server Operating System? Tell me the name of Server OS?

Ans- An operating system which can provide network services is known as Server operating system. Windows-NT, Windows 2000 Advanced Server, Windows Server 2003, Windows server 2008 and windows server 2012 are the server operating system of Microsoft.

Complete The Following

OS	Minimum Hardware Requirement	Editions	Booting Files
Windows XP	Processor-233MHz, RAM-64 MB,	*Starter *Home *Professional	NTLDR, Boot.ini, Bootsect.doc, NTDETECT.com,

	HDD-1.5 GB		NTOSKRNL.exe Win.com, hall.dll
Windows Vista	Processor-800MHz, RAM-512 MB, HDD-15 GB	*Home Basic *Home Premium *Vista Business *Vista Enterprise *Vista Ultimate	Bootmgr, Winload.exe, NTOSKRNL.exe, Win.com, hall.dll
Windows-7	Processor-1 GHz, RAM-1 GB, HDD-16 GB	*Basic *Home Premium *Professional *Enterprise *Ultimate	Bootmgr, Winload.exe, NTOSKRNL.exe, Win.com, hall.dll
Windows-8	Processor-1 GHz, RAM-1 GB, HDD-16 GB	Win-8 Win-8 Pro Win 8 Enterprise	Bootmgr, Winload.exe, NTOSKRNL.exe, Win.com, hall.dll
Windows-8.1	Processor-1 GHz, RAM-1 GB, HDD-16 GB	Win-8 Win-8 Pro Win 8 Enterprise	Bootmgr, Winload.exe, NTOSKRNL.exe, Win.com, hall.dll
Windows-10	Processor-1 GHz, RAM-1 GB, HDD-16 GB	Win-10 Home Win-10 Pro Win-10 Enterprise Win-10 Education	Bootmgr, Winload.exe, NTOSKRNL.exe, Win.com, hall.dll

4- What are the features of Windows-8.1 and Windows-10?

Windows-8.1

- Charms Bar
- Multi Desktop

- Apps (People, Weather, Alarm, Scientific Calculator)
- Internet Explorer 11
- Advanced Search box

Windows-10

- Snap Assist
- 21st Century Command Prompt
- Cortana
- Project Spartan
- Xbox

5- How to activate Windows-10 through command prompt?

Ans- Refer the link:

https://grok.lsu.edu/article.aspx?articleid=17869

6- How to install Windows O/S using

- **DVD**
- **USB**
- **VHD**
- **Network**

Ans- Refer the link…….

7- What is the difference between clean installation and up gradation?

Ans- A clean install is a software installation in which any previous version is eradicated. The alternative to a clean install is an upgrade, in which elements of a previous version remain.

8- What is Dual Boot or Multi boot?

Ans- Multi-booting is the act of installing multiple operating systems on a computer, and being able to choose which one to boot. The term dual-booting refers to the common configuration of specifically two operating systems.

9- What is migration?

Ans- Migration is the process of moving from the use of one operating environment to another operating environment.

10- What are Disk clean up and Disk Defragment and how to perform?

Ans- Disk Cleanup- It is a computer maintenance utility to free up **disk** space on a computer's hard drive. The utility first searches and analyzes the hard drive for files that are no longer of any use, and then removes the unnecessary files.

Disk Defragment- Disk Defragment is a utility in Microsoft Windows designed to increase access speed by rearranging files stored on a disk to occupy contiguous storage locations.

11- What is Virtual Hard Disk (VHD)?

Ans- Virtual Hard Disk (VHD) is a disk image file format for storing the complete contents of a hard drive.

12- How to attach a VHD in Windows-10?

Ans- Refer the link:

https://www.groovypost.com/howto/attach-copy-files-vhd-windows-10/

13- How to hide and unhide a Folder?

Ans- Refer the link:

https://www.windowscentral.com/how-hide-files-and-folders-windows-10

14- What is Compression and Encryption? How to encrypt and compress a Folder in Windows-10?

Ans- Compression is the process of reducing the size of a file by encoding its data information more efficiently.

Encryption- Encryption is the most effective way to achieve data security. To read an **encrypted** file, you must have access to a secret key or password that enables you to decrypt it.

Refer the link:

https://windowsreport.com/encrypt-files-folders-windows-10/

15- What is the use of Winrar utility?

Ans- Winrar is a file archiver and compressor utility for Windows. It can create archives in RAR or ZIP file formats, and unpack numerous archive file formats.

16- What are different types of NTFS Permissions and how to apply?

Ans- Followings are the NTFS permissions

- **Full Control** - can create items; see, open, read, write, delete the item; modify access rights and attributes and take ownership of the item. Selecting the box enables all other options.
- **Modify** - can create items; see, open, read, write and delete the item; view access rights and modify attributes. Activating the option enables all check boxes below it.
- **Read & Execute** - can see, open/launch and read the item. Selecting the option enables the *List folder contents* and *Read* items.
- **List folder contents** - applies to folders only, same rights as *Read & Execute*, but applies to sub-folders only (not to files in these).
- **Read** - can see, open and view permissions and attributes of the item. The most basic right.
- **Write** - can create items; see, open, read, write, synchronize and delete the item. Viewing permissions and attributes is also allowed.
- **Special permissions** - customized rights that fall out of scope of basic rights.

17- How to share a folder? What are the share permissions?

Ans- Refer the link:

https://kodi.wiki/view/SMB/Windows

Followings are the Share permissions

- **Full Control**
- **Change**
- **Read**

18- What is UNC Path?

Ans- Universal Naming Convention **(UNC)** is a standard for accessing servers, printers and other share resources on a network. A UNC path uses double slashes or backslashes to precede the name of the computer.

19- How to change the space of recycle bin in Windows-10?

Ans- Refer the link:

https://www.tenforums.com/tutorials/32948-change-maximum-storage-size-recycle-bin-windows-10-a.html

20- What is quota? How to apply quota on a drive?

Ans- Quota is use to specify storage limit on a drive for the users.

Refer the link:

https://www.isunshare.com/windows-10/enable-quota-management-for-hard-disk-in-windows-10.html

21- What is a User account? What is Built-In user account?

Ans- A **user account** is a collection of information that tells Operating System which files and folders you can access, what changes you can make to the computer.

Built-In User: - Built-in user accounts are the user accounts which are created automatically while installing operating System. Important built-in user accounts are Administrator and Guest.

22- How to create a User account in Windows-10?

Ans- Refer the link:

https://www.lifewire.com/how-to-create-and-delete-user-accounts-in-windows-10-4096672

23- How to change the password of a user in Windows-10?

Ans- Refer the link:

https://www.laptopmag.com/articles/change-password-windows-10

24- What is a group? How to create a group and add a user in group?

Ans- A group is container of computer objects such as users, group, computers; printers etc any permission applied to the group will be applicable to all group members.

Refer the link:

https://www.isunshare.com/windows-10/5-ways-to-open-local-users-and-groups-in-windows-10.html

25- What is Applocker? How to prevent game for a user through Applocker?

Ans- Applocker is a new feature in **Windows Operating Systems** that allows you to specify which users or groups can run particular applications in the computer. If you use **Applocker**, you can create rules to allow or deny applications from running.

26- What is UAC?

Ans- User Account Control (**UAC**) is a feature in **Windows** that can help prevent unauthorized changes to your computer. **UAC** does this by asking you for permission or an administrator password before performing actions that could

potentially affect your computer's operation or that change settings that affect other users.

27- What are Password and Account lockout policies?

Password Policies- A **password policy** is a set of rules designed to enhance computer security by encouraging users to employ strong **passwords** and use them properly.

Following are the password policies

- Enforce Password History
- Maximum Password Age
- Minimum Password Age
- Minimum Password Length
- Password must meet complexity requirements
- Store password using reversible encryption

Account Lockout Policies: - Account Lockout Policy determines what happens when a user enters a wrong password. It ensures that an attacker can't use a brute force attack or dictionary attack to guess and crack the user's password.

Following are the password policies

- Account Lockout Duration
- Account Lockout threshold
- Reset Account Lockout counter after

28- What is Password reset disk? How to create password Disk?

Ans- The Password Reset Disk is essentially a small file that can be used to reset your password, even if you have changed your password since creating the reset disk.

Refer the link: https://www.windowscentral.com/how-create-and-use-password-reset-disk-windows-10

29- What is Device Manager? How to enable and disable device through device manager?

Ans- The **Device Manager** is a Control Panel in Microsoft Windows operating systems. It allows users to view and control the hardware attached to the computer.

Ans- Refer the link

https://community.shaw.ca/docs/DOC-1037

30- How to install, update and roll back driver?

Ans- Refer the link:

https://answers.microsoft.com/en-us/windows/forum/windows_10-hardware-winpc/how-to-install-and-update-hardware-drivers-in/a97bbbd1-9973-4d66-9a5b-291300006293

31- What is unsigned driver? How to search unsigned driver in your computer?

Ans- An **unsigned driver** is one that has NOT been tested, approved, or have an electronic signature placed on it by Microsoft; these types of driver may harm operating system.

Refer the link:

http://www.thewindowsclub.com/identify-unsigned-drivers-sigverif-windows

32- What is Disk management? How to create, delete, shrink and extend a partition?

Ans- Disk Management is a Microsoft Windows utility first introduced in Windows XP as a replacement for the fdisk command. It enables users to view and **manage** the **disk** drives installed in their computer and the partitions associated with those drives.

Refer the link:

https://www.digitaltrends.com/computing/how-to-partition-a-hard-drive-in-windows/

33- How to mount a partition with a NTFS folder and to change the drive letter of a partition?

Refer the link:

https://www.windowscentral.com/how-mount-hard-drive-folder-windows-10

34- What is Basic and Dynamic Disk? How to convert basic disk into Dynamic Disk?

Ans- Basic Disk-A basic disk uses primary partitions, extended partitions, and logical drives to organize data. Basic disks can have either four primary partitions or three primaries and one extended partition. The extended partition can contain multiple logical drives (up to 128 logical drives are supported). A basic disk can be easily converted into Dynamic Disk.

Dynamic Disk- Dynamic disks provide features that basic disks do not, such as the ability to create volumes that span multiple disks (spanned and striped volumes) and the ability to create fault-tolerant volumes (mirrored and RAID-5 volumes). All volumes on dynamic disks are known as dynamic volumes. Dynamic Disk cannot easily convert into basic Disk.

Refer the link:

http://www.thewindowsclub.com/convert-basic-disk-to-dynamic-disk-windows-8-7

35- How to assign 2 IP address to a computer?

Refer the link:

https://tunecomp.net/windows-10-multiple-ip-addresses/

36- How to change the name of a PC?

Refer the link:

https://www.groovypost.com/howto/rename-windows-10-computer/

37- What is the latest version of Internet Explorer?

Ans- Internet explorer 11 is the latest version.

38- What is internet explorer compatibility view in Internet Explorer?

Ans- Internet explorer compatibility view feature allows websites designed for previous versions of internet explorer to display correctly in internet explorer 8 or later.

39- What are Smart Screen Filter and In Private Mode in Internet Explorer?

Ans- Smart Screen filter is a feature of internet explorer that protects your internet explorer from browsing websites which are illegal, viral fraudulent or malicious. Smart Screen filter blocks the websites related to phishing.

In Private mode is a feature of internet explorer 8 or later that limits the amount of information available about a user's browsing session to a third party user. In private mode provides two technologies namely **In Private browsing mode** and **In private filtering mode.**

40- What is Add-Ons? And how to manage Add-Ons in Internet explorer 11?

Ans- Add-ons extends the functions of the browser. You can manage add-ons through Manage Add-ons option under tools menu in internet explorer.

Refer the link:

https://www.wikihow.com/Add-Addons-in-Internet-Explorer

41- What is Pop-Up Blocker in a browser?

Ans- Pop-up Blocker is a feature in internet Explorer that allows you to block pop-ups from appearing when you browse a web page.

42- How to delete history from internet explorer?

Refer the link:

http://home.bt.com/tech-gadgets/internet/how-to-check-and-delete-your-web-browser-history-in-windows-10s-edge-11363996318373

43- What is Windows updates and how to configure?

Ans- The Windows Update utility is used to keep your Windows-based computer up-to-date with the latest patches. These updates will close security holes in your computer and hopefully prevent you from being hacked or infected with viruses. Windows updates are now replaced with **Microsoft Updates** in latest Windows OS.

Refer the link:

http://www.thewindowsclub.com/windows-update-security-settings-windows-10

44- What is firewall? What are Inbound and Outbound rules?

Ans- Firewalls provide the security by limiting access to your **computer** and **network**, a **firewall** is also useful for allowing remote access to a private **network** through secure authentication certificates and logins. **Inbound rules** are use to filter the traffic that comes to your computer/Network and **Outbound rules** are use to filter the traffic that leaves your Computer/Network.

45- What is offline file sharing? How to map a Network Drive?

Ans- Using **offline files**, you can access **files** stored in **shared** network folders even when the network copies are unavailable. You can do this by choosing the network **files** you want to make available **offline**, which automatically creates a copy of the network **files** on your computer.

Refer the link:

https://www.laptopmag.com/articles/map-network-drive-windows-10

46- How to add a Laptop in Wi-Fi network?

Refer the link:

https://its.uq.edu.au/services-and-guides/internet-and-wifi/connect-uq-wifi/connect-wifi-using-windows-10

47- What is Bit Locker? Which edition of windows-7 supports bit locker?

Ans- BitLocker is a full disk encryption feature included with select editions of Windows Vista and later. It is designed to protect data by providing encryption for entire volumes.

48- What are the different modes of bit locker? Encrypt a drive through bit locker?

Following are the modes of bit locker

- **TPM only**
- **TPM with Startup key**
- **TPM with PIN**
- **TPM with PIN and startup key**
- **Bit Locker without TPM**

Refer the link:

https://www.windowscentral.com/how-use-bitlocker-encryption-windows-10

49- What is bit locker to go?

Ans- Bit Locker To Go allows you to protect data stored on USB storage devices. In windows-7 it is available in Enterprise and Ultimate editions.

50- What are Reliability Monitor and Resource Monitor?

Ans- Reliability Monitor is an advanced tool that measures hardware and software problems and other changes to your computer. It provides a stability index that ranges from 1 (the least stable) to 10 (the most stable). You can use the index to help evaluate the **reliability** of your computer.

Resource Monitor is a tool that you can use to monitor the usage of CPU, hard disk, network, and memory in real time.

51- What is virtual Memory? How to resize Virtual Memory in your Computer?

Ans- Virtual memory is a feature of an operating system (OS) that allows a computer to compensate for shortages of physical memory by temporarily transferring pages of data from RAM to disk storage.

Refer the link: http://www.thewindowsclub.com/increase-page-file-size-virtual-memory-windows

52- What is Remote Desktop and Remote assistance? How to setup Remote desktop in Windows-10?

Ans- Remote desktop is a program or an operating system feature that allows the user to connect to a computer in another location, see that computer's **desktop** and interact with it.

Remote Assistance is a feature of Windows XP and later that allows a user to temporarily view or control a **remote** Windows computer over a network or the Internet to resolve issues without directly touching the unit. It is based on the **Remote** Desktop Protocol.

Refer the link……

https://www.groovypost.com/howto/setup-use-remote-desktop-windows-10/

53- What is the VNC software? Name any 5?

VNC works on a client/server model: A VNC viewer (or client) is installed on the local **computer** and connects to the server component, which must be installed on the **remote computer**. The server transmits a duplicate of the **remote computer's** display screen to the viewer.

Team viewer, Show my PC, Ammy Admin, LogMeIn, imPCremote, TightVNC and Aeroadmin are famous VNC software.

54- What is System Restore ? How to create SRP?

Ans- System Restore is a feature in Microsoft Windows that allows the user to revert their computer's state to that of a previous **point** in time, which can be used to recover from **system** malfunctions or other problems.

Refer the link…….

https://www.windowscentral.com/how-create-system-restore-point-windows-10-simple-double-click

55- What are advanced Boot options? Explain all?

- **Repair your Computer-** Shows a list of system recovery tools you can use to repair startup problems, run diagnostics, or restore your system.
- **Safe mode-** Starts Windows with a minimal set of drivers and services.
- **Safe mode with networking-** Starts Windows in safe mode and includes the network drivers and services needed to access the Internet or other computers on your network.
- **Safe mode with command prompt-** Starts Windows in safe mode with a command prompt window instead of the usual Windows interface.
- **Enable boot logging-** Creates a file, ntbtlog.txt, that lists all the drivers that are installed during startup and that might be useful for advanced troubleshooting.
- **Enable low-resolution video (640-480) -** Starts Windows using your current video driver and using low resolution and refresh rate settings. You can use this mode to reset your display settings.
- **Last Known Good Configuration-** Starts Windows with the last registry and driver configuration that worked successfully.

- **Directory Services Restore Mode-** Starts Windows domain controller running Active Directory so that the directory service can be restored.
- **Debugging Mode-** Starts Windows in an advanced troubleshooting mode intended for IT professionals and system administrators.

56- What is shadow copy? Create shadow copy of a drive?

Ans- Shadow Copy (also known as Volume Snapshot Service, Volume **Shadow Copy** Service or VSS) is a technology included in Microsoft Windows that allows taking manual or automatic backup **copies** or snapshots of computer files or volumes, even when they are in use.

Refer the link. http://itsimple.info/?p=258

57- What is System Repair Disk? How to create SRD?

Ans- A **system repair disc** can be used to boot your computer. It also contains Windows **system recovery** tools that can help you in recovering Windows from a serious error or **restore** your computer from a **system** image.

Refer the link:

https://www.howtogeek.com/131907/how-to-create-and-use-a-recovery-drive-or-system-repair-disc-in-windows-8/

58- What is a Virus? What are different types of Viruses?

Ans- A computer virus is a program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes and it can damage your data and Operating System.

Boot Sector Virus, Browser Hijacker, Direct Action Virus, File injector virus, Macro Virus, Multipartite virus, Polymorphic virus, Resident Virus and Web scripting virus are the famous viruses.

59- What is Antivirus? How to install and activate an antivirus?

Ans- Anti-virus software is a program or set of programs that are designed to prevent, search for, detect, and remove software viruses, and other malicious software like worms, Trojans, adware, and more.

Refer the link:

https://esupport.quickheal.com/support/solutions/articles/23000004922-how-to-install-quick-heal-

1. Select Start > Programs > Quick Heal antivirus > Activate Quick Heal antivirus.
2. On the Registration Wizard, enter the 20-digit Product Key and click Next.
3. Registration details are displayed, verify the details and click Next.
   Your product is activated successfully. The expiry date of your license is displayed.
4. Click Finish to close the Registration Wizard

Operating System troubleshooting questions

1. **How to reset forgotten password.**

https://www.howtogeek.com/222262/how-to-reset-your-forgotten-password-in-windows-10/

2. **How to fix bootmgr is missing error.**

http://www.thewindowsclub.com/fix-bootmgr-missing-windows-7

3. **How to tune up PC.**

https://www.cnet.com/how-to/easy-ways-to-speed-up-windows-10/

4. **How to fix system BSOD error.**

https://www.windowscentral.com/how-troubleshoot-blue-screen-errors-windows-10

5. **How to fix Black Screen Problem.**

https://www.windowscentral.com/how-fix-black-screen-problems-windows-10

6. **How to fix Slow Startup**

https://www.partitionwizard.com/partitionmagic/slow-startup-Windows-10.html

7. **How to fix missing DLL.**

https://support.microsoft.com/en-in/help/929833/use-the-system-file-checker-tool-to-repair-missing-or-corrupted-system

8. **Internet Explorer not working or slow.**

https://appuals.com/internet-explorer-11-not-responding/

9. **How to remove bad sectors from the disk.**

https://windowsreport.com/bad-sectors-windows-8/

10. **How to fix MBR.** http://www.thewindowsclub.com/repair-master-boot-record-mbr-windows
11. **How to rebuild Boot Configuration Data.**

https://www.howto-connect.com/rebuild-boot-configuration-databcd-windows-10/

12. **How to reset group policy.**https://www.windowscentral.com/how-reset-local-group-policy-objects-their-default-settings-windows-10

Network Essential

- **What is a network? What are the types of network?**

Ans- A group of devices which are connected to each other through some media is called a network. LAN, MAN and WAN are the types of network.

- **What is the networking? Give few examples?**

Ans- The logical flow of data in a network is called networking. CSMA/CD, CSMA/CA, Token ring, Token passing and FDDI are the examples.

- **What are the benefits of the network?**

Ans- The advantages of a network are

a) Sharing Information (Data)
b) Sharing Hardware
c) Centralized management and Security

- **What is internet, Intranet and extranet?**

Internet- It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope.

Intranet- A privately maintained computer network that can be accessed only by authorized persons, especially members or employees of the organization that owns it.

Extranet- An extranet is a controlled private network allowing customers, partners, vendors, suppliers and other businesses to gain information.

- **What is URL?**

Ans- URL stands for **Uniform Resource Locator**, and is used to specify addresses on the World Wide Web.

- **What is OSI model? Who developed OSI model?**

Ans- Open System Interconnection is a logical layered model which describes the flow of data from sender to receiver device. It has 7 logical layers and each layer perform specific task on the data. OSI was developed by ISO (International Standard for Standardization)

Complete the following

Layer	Counting	Responsibility	Protocol	PDU	Hardware Device
Application	Layer-7	*Mail Services *Directory Services *Authentication	HTTP, FTP, SMTP, Telnet,	Data	None
Presentation	Layer-6	*Translation *Encryption *Compression	All Extensions (.docx, .xlsx, .pdf etc.	Data	None
Session	Layer-5	*Dialog Control *Synchronization	PAP,SSH,SMB, NFS,PPTP,RPC, SIP	Data	None
	Layer-4	*Service Point Addressing *Segmentation	TCP,UDP,SPX,SCTP,AH	Segments	None

Transport		and Reassembly *Connection Control *Error Control			
Network	Layer-3	*Logical Addressing *Routing *NATing *Internetworking	IP, IPX, NAT, RIP, EIGRP, OSPF,HSRP, VRRP, ICMP,IGMP,		Router, Layer-3 Switches, Gateway, Firewall
Data Link	Layer-2	*Framing *Physical Addressing *Error Control	MAC,LLC,CDP, ATM,HDLC, PPP	Frame	Switch, Bridge, LAN Card
Physical	Layer-1	*Media Specification *Transmission Mode and Transmission Rate *Encoding and Decoading	None	Bits and Bytes	Hub, Repeater, Media Convertor, Connector

7- What are the different types of Network Cables?

Ans- There are 3 types of network cables

a) Coaxial
b) Twisted Pair
c) Fiber Optic

8- What is the deference between Attenuation and Crosstalk?

Attenuation- As the signals travel through cables, they lose their strength. This loss of signal is called attenuation.

Crosstalk- It is the interference generated by the current flowing through one cable affects electrical current of other cable.

9- What are the characteristics of Cat5, Cat5e and Cat6?

Category	Characteristic
Cat5	It provides 100 Mbps of Bandwidth and the signal frequency is 100 MHz
Cat5e	It provides 1000 Mbps of Bandwidth and the signal frequency is

	100 MHz
Cat6	It provides 1000 Mbps of Bandwidth and the signal frequency is 250 MHz

Complete the following

Cable Type	Maximum Segment Length	Type of Connector
UTP	100 Meter	RJ-45
STP	100 Meter	RJ-45
Coaxial RG-58	200 Meter	BNC
Coaxial RG-8	500 Meter	AUI, Vampire Tap
Fiber Optic	2-100 KM.	ST, SC, SMA, MIC

10- Explain the UTP/STP network cable color coding according to…….

Pin	EIA/TIA T-568A	EIA/TIA T-568B
Pin-1	White/Green	White/Orange
Pin-2	Green	Orange
Pin-3	White/Orange	White/Green
Pin-4	Blue	Blue
Pin-5	White/Blue	White/Blue
Pin-6	Orange	Green
Pin-7	White/Brown	White/Brown
Pin-8	Brown	Brown

11- How to create cross and straight cables? What is the use of cross and straight cable?

Ans-

Cross T-568A----------T568B

Straight T-568B----------T568B

Cross cable is use to connect similar devices whereas **Straight cable** is use to connect dissimilar devices.

12- What is MAC address? How to check the MAC address of the PC?

Ans- MAC address is the physical address of the device which is 48-bits (6-Byte) address. **Ipconfig /all** or **getmac** command is use to check the MAC address of the computer.

13- Define Hub, Repeater, Switch, Router and Gateway? Tell me the OSI layer of each device?

Hub: - A hub operates at the physical **la**yer of OSI model. It connects multiple devices together in a single network segment. A hub also called multiport repeater. It operates in half duplex mode and doesn't provide guaranteed bandwidth to the connected device.

Switch: - A Switch operates of the Data link layer of OSI model. It connects multiple devices together in a single network segment. It is called an intelligent network device because it creates own MAC address table to forward the frame to the appropriate destination. It operates in full duplex mode and provides guaranteed bandwidth to the connected device.

Router: - Router is a network layer device which communicates deferent networks which may be near or very far. A router sends or forwards the packets to the destination network using the best route.

14- What is Topology? Define Bus, Star, Ring, Mesh, Tree and Hybrid topology?

Ans- A topology determines the physical arrangement of the devices in a network.

Bus Topology: - In bus topology all the devices are connected to a coaxial cable in a liner method, the coaxial cable is called backbone or trunk which needs to be terminated at the both end.

Star Topology: - In star topology multiple devices are connected to a centralized device such as Hub or switch.

Ring Topology: - In ring topology multiple devices are connected in a physical loop in point-to-point manner.

Mesh Topology: - In mesh topology all the devices are connected to each other through a dedicated link.

Tree Topology: - In tree topology multiple star topologies are connected to a centralized bus topology.

Hybrid Topology: - A hybrid topology is the interconnection of different types of topologies.

Complete the following

Type of Communication	IEEE Standard
CSMA/CD	802.3
Token Passing	802.4
Token Ring	802.5
Wireless LAN	802.11

15- Define the following

a. **10Base2-** 10 Mbps LAN speed, Baseband signaling and coaxial thin cable.
b. **10Base5**- 10 Mbps LAN speed, Baseband signaling and coaxial thick cable.
c. **10BaseT-** 10 Mbps LAN speed, Baseband signaling and twisted pair cable.
d. **100BaseT-** 100 Mbps LAN speed, Baseband signaling and twisted pair cable.
e. **1000BaseT-** 1000 Mbps LAN speed, Baseband signaling and twisted pair cable.

16- What is IP Address? What are the Classes of IPV4?

Ans- An **IP address** is a unique identifier of a computer or device in a network through which they are identified can communicate to each other. A, B, C, D and E are the classes of IPV4.

17- What is the range of Class A, B, C, D and E?

Ans-

Class	Range
A	**0-127**
B	**128-191**
C	**192-223**

D	**224-239**
E	**240-255**

18- What is Subnet Mask? What is the default subnet mask of class A, B and C?

- **Ans-** A subnet mask is a 32-bit number used to differentiate the network component of an IP address by dividing the IP address into a network address and host address.

A- 255.0.0.0
B- 255.255.0.0
C- 255.255.255.0

19- What is the difference between private and public IP address? What is private IP address range in class A, B and C?

Ans- The IP address which is assigned by an ISP and is use to communicate in public network (Internet) is called Public IP address whereas an IP address which is use to communicate in private Network (Intranet) is called Private IP address.

Class	Private IP
A	**10.0.0.0 to 10.255.255.255**
B	**172.16.0.0 to 172.31.255.255**
C	**192.168.0.0 to 192.168.255.255**

20- What is a gateway?

Ans- A network gateway is an internetworking system which is capable to join different networks. Most of the time a router acts as a gateway in the network.

21- What is APIPA and Loopback address?

Ans- APIPA (Automatic Private IP Addressing) assigns a class B IP address from 169.254.0.0 to 169.254.255.255 to the client when a DHCP server is either permanently or temporarily unavailable.

Loop Back Address- Loopback address is a special IP (127.0.0.1) that is designated for the software loopback interface of a machine. The loopback interface has no hardware associated with it, and it is not physically connected to a network. The loopback interface allows IT professionals to test IP software without worrying about broken or corrupted drivers or hardware.

22- What do you standard by static and dynamic IP addressing?

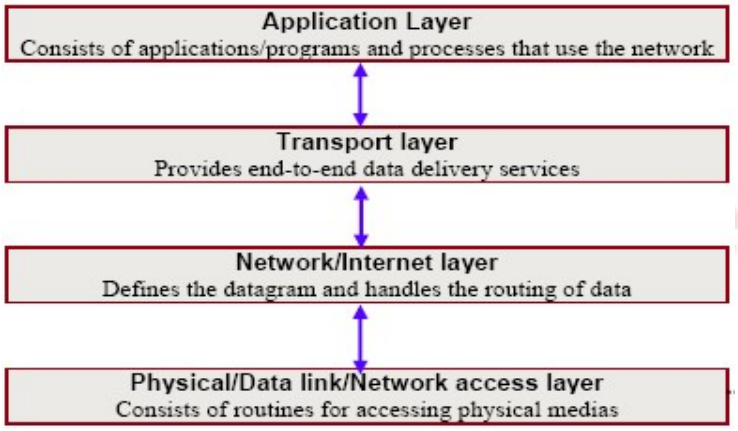
Ans- When a device is assigned a **static IP address**, it does not change. The device always has the same **IP address**. Dynamic **IP addresses** are assigned by the DHCP Server when they connect. These **IP addresses** are temporary, and can change over time.

23- What are differences between IPV4 and IPV6?

IPV4	IPV6
It is 32-bits address.	It is 128-bits address.
32-bits are divided into 4 equal parts; each part is having 8-bits and called an octet.	128-bits are divided into 8 groups; each group is having 16-bits and called a block.
Octets are separated by. (dot)	Blocks are separated by : (colon)
IPV4 is written in decimal format.	IPV is written in Hexadecimal format.
It uses subnet mask to determine network and host bits.	It uses prefix to determine network and host bits.
It is divided into 5 different classes.	No classification.
There are 3 types of address Unicast, Multicast and Broadcast.	There are 3 types of address Unicast, Multicast and Anycast.

24- What are the layers of TCP/IP model?

There are 4 layers in TCP/IP model



25- What are differences between TCP and UDP?

TCP	UDP
Transmission Control Protocol	User Datagram Protocol
TCP is a connection-oriented protocol.	UDP is a connectionless protocol.
TCP is reliable	UDP is unreliable
TCP is slow	UDP is fast
TCP rearranges data packets in the order specified.	UDP has no inherent order as all packets are independent of each other
TCP header size is 20 bytes	UDP Header size is 8 bytes.
TCP does error checking	UDP does error checking, but no recovery options.
Acknowledgement segments	No Acknowledgment
TCP does Flow Control.	UDP does not have an option for flow control

26- Explain FTP, HTTP, SMTP, Telnet and SNMP?

FTP- The File Transfer Protocol (**FTP**) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network.

HTTP- The Hypertext Transfer Protocol is an application protocol to access web pages from the web servers.

SMTP- The Simple Mail Transfer Protocol is an application protocol to send mails.

Telnet- Telnet is an application protocol for accessing remote computers. Through **Telnet**, an administrator or another user can access other computers remotely.

SNMP- The Simple Network Management Protocol is an application protocol to manage Network Devices.

27- Complete the following

TCP/IP Service	Port Number
FTP	20, 21
SSH	22
Telnet	23
SMTP	25
DNS	53
DHCP Server	67, 68

TFTP	69
HTTP	80
POP	110
IMAP	143
SNMP	161, 162
HTTPS	443

28- What are DHCP Server, DNS Server and WINS?

Dynamic Host Configuration Protocol (DHCP) Server is used to assign automatic TCP/IP configuration to its client.

Domain Name System (DNS) server is use to translate Fully Qualified Domain Names (FQDN) into IP addresses and IP address into Fully Qualified Domain Name.

Windows Internet Name Service (WINS) is use to resolve NetBIOS name into IP address.

29- What is the use of following commands

a. **Ping-** The **Packet Internet Gopher (Ping) command** helps to verify IP-level connectivity. When troubleshooting, you can use **ping** to send an ICMP echo request to a target host name or IP address.
b. **Ipconfig and Ipconfig /all-** These commands are use to verify TCP/IP Configuration in Windows OS.
c. **Ipconfig /release and Ipconfig /renew-** /release is used to release current dynamic IP address whereas /renew is used for request new IP address.
d. **Tracert** command can show you the path of packet from your computer to the Destination. It will list all the routers it passes through until it reaches its destination.
e. **Pathping**- The **pathping** command is a route tracing tool that combines features of the **ping** and **tracert** commands. The **pathping**

command sends packets to each router on the way to a final destination over a period of time

f. **Arp-** Arp command allows you to display and modify the Address Resolution Protocol (ARP) cache. An *ARP cache* is a simple mapping of IP addresses to MAC addresses.

g. **Netstat-** Netstat command provides information and statistics about protocols in use and current TCP/IP network connections.

30- What is Wireless Network? What is the IEEE standard of Wireless network?

Ans- A network in which devices are connected through Radio Frequency (RF) signal is called wireless Network. The IEEE standard of wireless is **802.11.**

31- What are the differences between wired LAN and wireless LAN?

Wired	Wireless
IEEE Standard is 802.3	IEEE standard is 802.11
Devices are physically connected.	Devices are logically connected.
Signal loss is low.	Signal Loss is high.
Faster data transmission rate.	Slower data transmission speed
More Secure	Less Secure
Covers large distance.	Covers short distance.

32- Complete the following

Standard	Frequency	Bandwidth
802.11	2.5 GHz	2 Mbps
802.11a	5 GHz	54 Mbps
802.11b	2.4 GHz	11 Mbps
802.11g	2.4 GHz	54 Mbps
802.11n	2.4/5 GHz	54 Mbps to 600 Mbps

33- What is the deference between Ad-Hoc and Infrastructure wireless Network?

Ans- In Ad-hoc network devices are connected in wireless network using their LAN cards and Access Point or Wireless Router is not required in Ad-Hoc.

In **Infrastructure** network devices are connected in network through Wireless Access Point of Wireless Route.

34- What are the ways to secure wireless network?

Following are the way to secure wireless Network

- Change the default setting of wireless router (IP Address, SSID, Admin Password etc)
- Configure Network Password
- Enable encryption
- Configure MAC filtering
- Disable SSID broadcast
- Configure 802.1x
- Physical security of Wireless Router/Access Point

35- Define the following…

a. **SSID- Service Set Identifier** is technical term for a wireless network name. When you set up a wireless network, you give it a name that is called SSID. SSID is a case sensitive, 32 alphanumeric.
b. **Mac Filtering** refers to a security access control method whereby the 48-bit address assigned to each network card is used to determine access to the network.
c. **WEP and WPA** are the encryption method used in wireless network. WEP provides 56 or 128-bit encryption whereas WPA provides 256-bit encryption.

36- How to configure wireless router (Dlink)?

Find the link:

https://www.isat.co.za/support-online/adsl-setup-dlink-2750u-router.aspx

37- What are the different ways to share the internet?

Ans- Followings are the ways to share the internet

- Internet Connection Sharing (ICS)
- Network Address Translation
- Proxy

To share internet connection using ICS

Find the link:

https://www.utilizewindows.com/internet-connection-sharing-ics-configuration-in-windows-7/

To share internet connection using CC Proxy

Find the link:

http://www.youngzsoft.net/ccproxy/install.htm

To share internet connection using NAT (Windows Server 2012)

Find the link:

http://www.dell.com/support/article/in/en/indhs1/how10169/configuring-windows-server-2012-r2-as-a-router?lang=en

What are the full form of the below

LAN	MAN	WAN	WWW	URL	ISP	POP	IMAP	SMTP	HTTP
FTP	PING	ICMP	IGMP	TCP	UDP	IP	DNS	DHCP	SSH
ICS	NAT	APIPA	PST	OST	SNMP	NFS	SMB	FQDN	OSI
ISO	MAU	ARP	MAC	LLC	CSMA/CD	RFI	EMI	ANSI	ARPA
EIA	TIA	IEEE	WINS	IANA	CSMA/C	PDU	UTP	STP	ISDN

					A				
FCS	CRS	DSL	ADSL	WPAN	RARP	FDDI	DTE	DCE	BNC
QoS	TFTP	SCTP	NNTP	RIP	IGRP	EIGRP	OSPF	BGP	DSSS
FHSS	WEP	WPA	WAP	SSID	TKIP	AES	GPRS	CDMA	GSM
GPS	CDPD	VPN	HTML	VLAN					

E-mail Client

1- What is E-mail Client? Tell me the name of any 5?

Ans- E-mail client is an application which allows you to store mails locally on your computer so that you can access previously stored mail even you are not connected to internet. **MS-Outlook, Windows-Mail, Mozilla Thunderbird, Lotus notes, Postbox and Apple mail** are some famous email clients.

2- What is Web Mail?

Ans- Webmail are **web-based email** accounts. These are usually free email accounts that are operated from a website. Examples include Hotmail, Gmail and Yahoo **Mail**. **Webmail** allows the users to access their emails as long as they have access to an Internet connection and a **web** browser.

3- What is Office 365?

Ans- Microsoft **Office 365** is a Software as a Service (SaaS) solution that includes Microsoft Office and other services, such as email and collaboration, from

Microsoft's cloud server. Microsoft **Office 365** provides desktop functionalities and is available by subscription.

4- How to manually configure Outlook for Office 365?

Ans- Refer the link:

https://knowledge.oit.duke.edu/?p=1953

5- What is MS-Outlook? What information you require to configure Ms-Outlook or any E-mail client?

Ans- MS-Outlook is an E-mail client by Microsoft which comes with MS-Office. Following information is required to configure E-Mail client

a) E-mail and Password
b) Internet connection
c) Incoming and Outgoing mail server address
d) Port Number of Incoming and Outgoing Protocol
e) MS-Office

6- How to configure MS-Outlook and how to configure mail in Android mobile?

Ans-Refer the link to configure Outlook in Windows based Computer

https://knowledge.web.com/subjects/article/KA-01014

Refer the link to configure mail in Android mobile

https://help.dreamhost.com/hc/en-us/articles/216662028-How-to-configure-email-on-an-Android-phone

7- How to configure Mozilla Thunderbird?

Ans- Refer the link:

https://support.office.com/en-us/article/send-automatic-out-of-office-replies-from-outlook-9742f476-5348-4f9f-997f-5e208513bd67

8- How to configure Apple Mail?

Ans- Refer the link:

https://my.bluehost.com/hosting/help/mac-mail

9. How to install & configure Lotus Notes?

Ans- Refer the link:

http://www.systoolsfaqs.com/lotus-notes/how-to-install-configure-8.5.html

10. How to create Signature and Rules and Alerts in Ms-Outlook?

Ans- Refer the link:

https://www.mail-signatures.com/articles/how-to-create-or-modify-an-email-signature-in-outlook-2010-and-2013/

Refer the link:

http://www.lse.ac.uk/intranet/LSEServices/IMT/guides/softwareGuides/office2013/creating-rules-to-manage-your-email.aspx

11. How to secure PST by applying password?

Ans- Refer the link:

https://support.office.com/en-us/article/set-a-password-to-help-protect-your-outlook-information-f60fb0e7-f0ad-4d7c-858b-9619d1b9f0b6

12. What is maximum size of PST in Outlook-2003, 2007, 2013 and 2016?

Ans-

a)	**MS-Outlook 2003**	**20 GB**
b)	**MS-Outlook 2007**	**20 GB**
c)	**MS-Outlook 2010**	**50 GB**
d)	**MS-Outlook 2013**	**50 GB**
e)	**MS-Outlook 2016**	**50 GB**

13. How to add a new PST in Outlook?

Ans- Refer the link:

https://www.easytweaks.com/setup-pst-file-outlook-2016/

14. How to perform backup and Restore in Outlook?

Ans- Refer the link:

https://www.windowscentral.com/how-back-your-outlook-2016-windows-data

15. How to configure Auto-Reply in Outlook?

Ans- Refer the link:

https://support.office.com/en-us/article/send-automatic-out-of-office-replies-from-outlook-9742f476-5348-4f9f-997f-5e208513bd67

16. How to repair PST? What is the default location of PST?

Ans- Refer the link

https://www.howto-outlook.com/faq/usingscanpst.htm#runningrepair

17. How to create a Calendar task in Outlook?

Ans- Refer the link

https://www.extendoffice.com/documents/outlook/1317-outlook-add-copy-task-to-calendar.html

18. How to change the font Outlook?

Ans-The default Message Font is 11-point Caliber. To change the default font for new messages:
Tools > Options > Mail Format > Stationery and Fonts > Personal Stationery > New mail message > Font

19- How to enable automatic spell check?

Ans- Tools: > Options > Spelling Tab > check "Always check spelling before sending"

20. What are port numbers of POP and IMAP with and without SSL?

Protocol	Port Without SSL	Port With SSL
POP	110	995
IMAP	143	993

21. What are the differences between MS-Outlook and Outlook-Express?

MS-Outlook	Outlook-Express
It is suitable for corporate users.	It is suitable for home users.
It supports features like calendar, Task list, Journal, Automatic backup (Archive).	It does not support features like calendar, Task list, Journal, Automatic backup (Archive).
It supports Message rules.	It supports only incoming mail

	filters.
It provides junk mail feature.	It does not provide junk mail feature.

22. What are POP3, IMAP, SMTP Protocols? What are the differences between POP and IMAP?

Ans- POP3 means **Post Office Protocol 3** is a protocol that offers a simple way for users to use mailboxes and download messages to their computers. It allows users to download mails from the mail server to the local server and enables you to read the mail even if you are offline.

IMAP- IMAP means **Internet Message Access Protocol;** it is a standard protocol for using e-mail service from your local server.

SMTP or Simple Mail Transfer Protocol allows you to send emails and not to receive them, it act as Mail Transfer Agent (MTA) to deliver your e-mail to the recipient's mail server.

Internet Message Access Protocol (IMAP)	**Post Office Protocol (POP)**
Mails are always saved on Server.	Mails are downloaded on local drive.
Changes made on device have effect on server content.	Changes made on device have no effect on server content.
Sent mail stays on the server so you can see it from any device	Sent mail is stored on your PC so you cannot see it from any device
Current version is IMAP4rev1.	Current version is POP3.
Supports mail syncing.	Does not support mail syncing.
Default port number is 143 and with SSL is 993.	Default port number is 110 and with SSL is 995.
It is slow as compare to POP.	It is Fast as compare to IMAP.

23. What is Junk mail and how to manage junk mail?

Ans- Junk Mail is advertisement and publicity materials that you receive through the post or by E-mail which you have not asked for and which you do not want.

To manage junk mails

i. Go to the main menu, tap on tools option and select “options” tab

ii. It will open a window, under preference tab; you will have the option, “Junk E-mail” and “E-mail options.”

iii. If you click on “junk e-mail” option, it will open another window

iv. In this window, you can choose the option and click on the checker’s box the way you required like “permanently delete suspected junk emails” or “disable links and other functionality in phishing messages.”

v. In the end, tap on “Apply” and then click “OK”.

24. What is Junk mail Folder?

Ans- The **junk mail** folder or spam folder is a tool used for filtering electronic **junk** e-**mail** out of a user's inbox on his or her private or commercial e-**mail** account.

25. What is Spam?

Ans- Spam email is a form of commercial advertising which is economically viable because **email** is a very cost-effective medium for the sender. If just a fraction of the recipients of a **spam** message purchase the advertised product, the **spammers** are making money and the **spam** problem is perpetuated.

26. What is Archive in Outlook ?

Ans- An **Archive** is a way to reduce the size of your **Outlook** Data File when the amount of email you keep starts to tax your computers resources, causing it to slow down. Unlike a traditional backup in which a copy is made, **archived** items are moved to a separate **Outlook** Data File and set aside to be accessed when needed.

27. What is Draft folder in Outlook ?

Ans- Microsoft **Outlook** automatically saves unsent emails that you are editing as **drafts**. If you close the email without sending it, **Outlook** will ask if you want to save the **draft**. If you choose to save the **draft**, your message will be saved in the **Drafts folder**.

28. What is RSS Feeds in Outlook ?

Ans- Really Simple Syndication (**RSS**) is a way for content publishers to make news, blogs, and other content available to subscribers. You can add your favorite **RSS** Feeds as subscriptions in **MS-Outlook.**

29. How to unsubscribe RSS Feeds in Outlook 2007, 2010, 2013 and 2016 ?

Ans- Refer the link:

https://support.office.com/en-us/article/unsubscribe-from-an-rss-feed-d0053e8c-6488-4d6c-b447-026d29328f57

30. What is Outlook address book ?

Ans- Outlook Address Book is a collection of **address books** or **address** lists created from your contact folders—to look up and select names, email addresses, and distribution lists when you **address** email messages.

31. How to create Outlook address in Outlook ?

Ans- Refer the link:

https://www.officetooltips.com/outlook_2016/tips/how_to_create_an_outlook_address_book.html

32. What is recurring meeting and how to setup it ?

Ans- Recurring meeting allows you to schedule Daily, Weekly, Monthly and yearly meetings with other people.

To setup recurring meeting

Refer the link:

https://support.office.com/en-us/article/schedule-a-meeting-with-other-people-5c9877bc-ab91-4a7c-99fb-b0b68d7ea94f

33. How to block an E-mail sender in Outlook ?

Refer the link:

https://support.office.com/en-us/article/block-a-mail-sender-b29fd867-cac9-40d8-aed1-659e06a706e4#ID0EAACAAA=2007

Basic Outlook troubleshooting

1. Check the user's internet connectivity – is he/she connected to the internet?
2. Check if MS Outlook is in **'Work Offline'** mode under the 'File' menu.
3. Check if the user is able to send/receive emails in '**webmail**' mode.*****
4. If using MS Outlook 2007, use the '**repair**' option under 'Email Account Settings'.
5. If possible, configure a test/dummy email account and check if it is a problem with MS Outlook.*****
6. Run '**Outlook Diagnostics**' under the '**Help**' menu (in MS Outlook 2007).
7. If the user is using MS Outlook 2003, try '**Detect & Repair**' under the 'Help' menu.
8. If there is a specific **error number**, Google it for any specific solution.
9. Create a **new user profile** and check if it is a problem with the user's current MS Outlook profile.
10. Check with any of the MS Outlook '**Run**' **commands** (as appropriate and necessary.)
11. If nothing works, **reinstall** MS Outlook.

Given below are some of the commonly used MS Outlook 'Run' Commands:

Click **Start** then choose **Run** then type each of the following commands followed by <<**Enter**>>

- **Outlook /Safe** (Opens the outlook in Safe mode)
- **Outlook /Cleanprofile** (cleans the profile)
- **Outlook /cleanfreebusy** (while using meeting planner to check the free-busy information)
- **Outlook /cleanreminders** (Clean the reminders)
- **Outlook /cleanviews**

Windows Server 2012/2016

1. **What is Server?**

Ans- A ***server*** is a computer that provides services to other computers. It may serve data to systems on a local area network (LAN) or a wide area network (WAN) over the Internet.

2. **What are the different Server operating system of Microsoft?**

Ans- The different server operating system of Microsoft are **Windows NT, Windows 2000 Advanced Server, Windows Server 2003, Windows Server 2003, Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2 and Windows Server 2016.**

3. **What are the main roles in Windows Server 2012 and 2016?**

1. Active Directory Certificate Services
2. Active Directory Domain Services
3. Active Directory Federation Services
4. Active Directory Lightweight Directory Services
5. Active Directory Rights Management Services

6. Application Server
7. DHCP Server
8. DNS Server
9. Fax Server
10. File and Storage Services
11. Hyper-V
12. Network Policy and Access Services
13. Print and Document Services
14. Remote Access
15. Remote Desktop Services
16. Volume Activation Services
17. Web Server (IIS)

4. **Compare Windows Server 2012/2016?**

   Refer the link: https://www.microsoft.com/en-in/cloud-platform/windows-server-comparison

5. **What is the minimum hardware requirement for installing Windows Server 2012/2016?**

Component	Windows Server 2012	Windows Server 2016
Processor	1.4 Ghz, 64-bit Processor	1.4 Ghz, 64-bit Processor
RAM	Server Core: 512 MB ECC RAM Desktop Exp: 2 GB ECC RAM	Server Core: 512 MB ECC RAM Desktop Exp: 2 GB ECC RAM
Disk Space	32 GB	32 GB
Screen Resolution	1024*768 Pixels	1024*768 Pixels

6. **Maximum Hardware supported in each edition of Windows Server 2012/2016?**

Windows Server Editions	Memory	Physical Processor
Windows Server 2012 Datacenter	4 TB	64
Windows Server 2012 Standard	4 TB	64
Windows Server 2012 Essential	64 GB	2
Windows Server 2012 Foundation	32 GB	1

Windows Server 2016 Datacenter	24 TB	64
Windows Server 2016 Standard	24 TB	64

7. **What is Server Core?**

Ans- Server Core is a minimal **server** installation option for the Windows **Server** 2008 R2 operating system.**Server Core** provides a low-maintenance environment capable of providing **core server** roles.**Server Core** is designed to provide an environment that reduces: Servicing requirements. Management requirements.

8. **What is Nano Server?**

Nano Server is a remotely administered **server** operating system optimized for private clouds and datacenters. The **Nano Server** installation option is available for Standard and Datacenter editions of Windows **Server 2016**.

9. **What is Active Directory Domain Services?**

Ans- Active Directory Domain Services (ADDS) is a directory service developed by Microsoft and used to store objects like User, Computer, printer, Network information.

10. **What is Domain Controller?**

Ans- Domain Controller is the server which holds the AD database, All AD changes get replicated to other DC and vise vase.

11. **What is Domain?**

Ans- A domain represents the group of network resources that includes computers, printers, applications and other resources.

12. **What is domain Tree?**

Ans- Domain tree is a hierarchical arrangement of windows Domain that share a contiguous name space.

13. **What is Forest?**

Ans- Forest consists of multiple Domains trees. The Domain trees in a forest do not form a contiguous name space however share a common schema and global catalog (GC).

14. **What is Global Catalog (GC)?**

Ans- The **Global Catalog** is a distributed data repository that contains a searchable, partial representation of every object in every domain in a multi domain Active Directory forest. The global catalog is stored on domain controllers that have been designated as global catalog servers and is distributed through multi master replication. Searches that are directed to the global catalog are faster because they do not involve referrals to different domain controllers.

15. **What is LDAP?**

Ans- LDAP (Lightweight Directory Access Protocol) is a software protocol for enabling anyone to locate organizations, individuals, and other resources such as files and devices in a network, whether on the public Internet or on a corporate intranet.

16. **Where is the ADDS database held?**

The Active Directory Database is Stored in %SYSTEM ROOT%\NDTS folder. Main database file for active directory is **ntds.dit.**

17. **What is the SYSVOL folder?**

Ans- SYSVOL is a shared folder which contains files which is common for the domain. This share will be created automatically when set up the ***DC.***

18. **What are the AD naming contexts (partitions).**

ANS- Every domain controller contains the following three directory partitions:

a. **Configuration**
b. **Schema**
c. **Domain**

19. **What is FSMO? What are the FSMO roles?**

Ans- Flexible single master operation (**FSMO**) is a Microsoft Active Directory feature that is a specialized domain controller task used when standard data transfer and update methods are inadequate. Tasks that do not suit multimaster replication are only viable as flexible single-master operations. Following are the FSMO roles in Active Directory

a) **Schema Master**
b) **Domain-Naming-Master**
c) **Infrastructure Master**
d) **RID Master**
e) **PDC Emulator**

20. **What is site?**

Ans- Sites in *Active Directory* represent the physical structure, or topology, of your network. *Active Directory* uses topology information, stored as *site* and *site* link objects in the directory, to build the most efficient replication topology.

21. **What is Trust relationship ?**

Ans- Trust relationship is a logical relationship established between two domains which allows authentication.

22. **What are the type of trust in Windows Server 2012?**

Ans- Following are the type of trust in Windows Server2012

Parent-child Trust: Parent-child Trust is an implicitly established, two-way, transitive trust when you add a new child domain to a tree.

Tree-root Trust: Tree-root Trust is an implicitly established, two-way, transitive trust when you add a new tree root domain to a forest.

Shortcut Trust: Shortcut Trust is an explicitly created, transitive trust between two domains in a forest to improve user logon times. Shortcut Trust will make a trust path shorter between two domains in the same forest. The Shortcut Trust can be one-way or two-way.

External Trust: External Trust is explicitly created, non-transitive trust between Windows Server 2003 domains that are in different forests or between a

Windows Server 2003 domain and Windows NT 4 domain. The External Trust can be one-way or two-way.

Realm Trust: Realm Trust is explicitly created transitive or non-transitive trust between a non Windows Kerberos realm and a Windows Server 2003 domain. This trust helps to create trust relationship between Windows Server 2003 domain and any Kerberos version 5 realm. The Realm Trust can be and one-way or two-way.

Forest Trust: Forest Trust is explicitly transitive (between two forests) created trust between two forest root domains. The Forest Trust can be one-way or two-way.

23. **What is OU?**

Ans- An Organizational Unit (***OU***) is a container within a Microsoft Active Directory domain which can hold users, groups and computers. It is the smallest unit to which an administrator can assign Group Policy settings or account permissions.

24. **What are Fine-Grained Passwords?**

Ans- Fine-Grained password policies are use to specify multiple password policies in a single domain and apply different restrictions for password and account lockout policies to different sets of users in a domain.

25. **What is NTDSUTIL?**

Ans- Ntdsutil.exe is a command-line tool for accessing and managing a Windows Active Directory (AD) database.

26. **What are RODCs?**

Ans- RODC is a new domain controller (DC) launched with Windows Server 2008. It lets you store an Active Directory (AD) domain database read-only copy on the DC.

27. **What is Additional Domain Controller (ADC)?**

Ans- An ***Additional Domain Controller*** is required for services redundancy and for domain authentication improvement in remote Site. ***Additional Domain Controllers*** avoid business discontinuity in case of server failure for the primary Domain Controller.

28. **What is Child Domain Controller?**

Ans- A **child domain** is another **domain** under a parent one in an active directory **domain** hierarchy. A **child domain** under a parent first root **domain** form a Tree. All Trees exists within a Forest, a forest is the security boundary.

29. **What is DNS Server?**

Ans- DNS Server is used to resolve FQDN (Fully Qualified Domain Name) in to IP address and vice versa.

30. **What is the post number of DNS?**

Ans- The port number of DNS is 53.

31. **What is forward lookup?**

Ans- Forward lookup is used to resolve FQDN name into IP address.

32. **What is reverse lookup?**

Ans- Reverse lookup is used to map IP address into FQDN name.

33. **What is resource record?**

Ans- It is a record provides the information about the recourses available in network infrastructure.

34. **What are Primary, Secondary, Stub and AD integrated zones?**

Primary Zone- DNS server hosts is a **primary zone** and it stores the master copy of **zone** data in a local file or in AD DS

Secondary Zone: Secondary **zone** is merely a copy of a **primary zone** that is hosted on another server, it cannot be stored in AD DS.

Stub Zone: A **stub zone** contains the list of authoritative **DNS** servers for a **zone** (domain) and host records that contain their IP addresses (known as glue records). It also contains the IP address of at least one master server for the **zone**.

Active Directory Integrated Zones- Active Directory integrated zone data is stored as an Active Directory object and is replicated as part of domain replication. This has the following advantages:

a) No single point of failure
b) Fault tolerance
c) Single replication topology
d) Secure dynamic updates

35. **What is the purpose of SRV records?**

Ans- SRV records are used in locating host that provides certain network services.

36. **What is SOA?**

Ans- Start of Authority record (abbreviated as ***SOA*** record) is a type of resource record in the Domain Name System (***DNS***) containing administrative information about the zone, especially regarding zone transfers.

37. **What is cache only DNS?**

Ans- Caching-only DNS servers don't actually host any zones and are not authoritative for any domains but rather just cache results from queries asked them by clients. If a client asks it to resolve.

38. **What is DNS Forwarder?**

Ans- A **forwarder** is a Domain Name System (**DNS**) server on a network used to forward **DNS** queries for external **DNS** names to **DNS** servers outside of that network. You can also forward queries according to specific domain names using conditional **forwarders**.

39. **What is DDNS?**

Ans- Dynamic DNS is a method of automatically updating a name server in the Domain Name System (DNS), often in real time, with the active DDNS configuration of its configured hostnames, addresses or other information.

40. **What is a query and what are the types of query?**

Ans- A request made by a DNS client to provide name server information is called a query. There are 2 types of DNS query

Iterative Query
An iterative name query is one in which a DNS client allows the DNS server to return the best answer it can give based on its cache or zone data. If the queried DNS server does not have an exact match for the queried name, the best possible information it can return is a referral.

Recursive Query
In Recursive name query, the DNS client requires that the DNS server respond to the client with either the requested resource record or an error message i.e. the record or domain name doesn't exist.

41. **What is DHCP?**

Ans- Dynamic Host Configuration Protocol (**DHCP**) is a network protocol that enables a **server** to automatically assign an IP address to a computer from a defined range.

42. **What is the DHCP Client/Server process?**

Ans-

a) The client computer sends a broadcast request (called a DISCOVER or DHCPDISCOVER), looking for a DHCP server to answer.
b) The router directs the DISCOVER packet to the correct DHCP server.
c) The server receives the DISCOVER packet. Based on availability and usage policies set on the server, the server determines an appropriate address (if any) to give to the client. The server then temporarily reserves that address for the client and sends back to the client an OFFER (or DHCPOFFER) packet, with that address information. The server also configures the client's DNS servers, WINS servers, NTP servers, and sometimes other services as well.
d) The client sends a REQUEST (or DHCPREQUEST) packet, letting the server know that it intends to use the address.
e) The server sends an ACK (or DHCPACK) packet, confirming that the client has a been given a lease on the address for a server-specified period of time.

43. **What is DHCP Scope?**

Ans- DHCP scopes are used to define ranges of addresses from which a DHCP server can assign IP addresses to clients.

44. **What are the DHCP Port number?**

Ans- Requests are on UDP port 68, Server replies on UDP 67 .

45. **What is DHCP Scope?**

Ans- A **DHCP scope** is a valid range of IP addresses that are available for assignment or lease to client computers on a particular subnet.

46. **What is Multi scope?**

Ans- A ***superscope*** allows a ***DHCP server*** to provide leases from more than one ***scope*** to clients on a single physical network.

47. **What is reservation in DHCP?**

Ans- ***DHCP reservation*** is a feature in the ***DHCP*** server that allows the ***DHCP*** administrators to reserve one or more IP addresses for particular mission-critical computers only.

48. **What is exclusion?**

Ans- An **exclusion** removes an IP address or range of IP addresses from the pool of addresses that are given out by the **DHCP** server. The server will not give out **excluded** addresses.

49. **What is DHCP lease?**

Ans- A DHCP lease is the amount of time that the DHCP server grants to the DHCP client permission to use a particular IP address. A typical server allows its administrator to set the lease time.

50. **What is DHCP Failover Clustering?**

Ans- A failover cluster is a group of servers that work together to maintain high availability of applications and services. If one of the servers, or nodes, fails, another node in the cluster can take over its workload without any downtime (this process is known as failover).

51. **What is DHCP Relay Agent?**

Ans- A **DHCP relay agent** is any host that forwards **DHCP** packets between clients and servers. **Relay agent**s are used to forward requests and replies between clients and servers when they are not on the same physical subnet.

52. **What is Hyper-V?**

Ans- Hyper-V is Microsoft's virtualization platform, or 'hypervisor', which enables administrators to make better use of their hardware by virtualzing multiple operating systems to run off the same physical **server** simultaneously.

53. **What are the type of network in Hyper-V?**

Ans- There are three type of networks in Hyper-V

a) **Private Virtual Network:-** This type of switch is bound to the physical network cards located in the host.

b) **Internal Virtual Network:**- This switch is not bound to a physical network card so only allows traffic between VMs and the host.

c) **External Virtual Network:**- This type of switch is only used for virtual machines to communicate with each other.

54. **What is Virtual Machine Snapshots?**

Ans- A **Virtual Machine snapshot** is a copy of the **virtual machine's** disk file (VMDK) at a given point in time. **Snapshots** provide a change log for the **virtual** disk and are used to restore a VM to a particular point in time when a failure or system error occurs.

55. **What is Windows Deployment Service (WDS)?**

Ans- Windows Deployment Services is a **server** role that gives administrators the ability to deploy Windows operating systems remotely. **WDS** can be used for network-based installations to set up new computers so administrators do not have to directly install each operating system (OS).

56. **What is prerequisites for WDS?**

Ans- Following are the requirements for WDS

a) Active Directory Domain Services
b) DNS Server
c) DHCP Server
d) NTFS Partition

57. **What is WIM?**

Ans- The Windows Imaging Format (**WIM**) is a **file**-based disk image format. It was developed by Microsoft to help deploy Windows Vista and subsequent versions of Windows operating system family, as well as Windows Fundamentals for Legacy PCs.

58. **What is WSUS?**

Ans- Windows Server Update Services (WSUS), previously known as Software Update Services (SUS), is a computer program developed by Microsoft Corporation that enables administrators to manage the distribution of updates and hot fixes released for Microsoft products to computers in a corporate environment. WSUS downloads these updates from the Microsoft Update website and then distributes them to computers on a network. WSUS is an integral component of Windows Server.

59. **What is group policy?**

Ans- Group Policy is a hierarchical infrastructure that allows a network administrator in charge of Microsoft's Active Directory to implement specific configurations for users and computers. **Group Policy** can also be used to define user, security and networking **policies** at the machine level.

60. **What is GPO?**

Ans- Group policy object (GPO) is a collection of group policy settings. It can be created using a Windows utility known as the Group Policy snap-in. GPO affects the user and computer accounts located in sites, domains, and organizational units (OUs).

61. **What is Group Policy Template (GPT) and Group Policy Container?**

Ans- A GPO is a collection of Group Policy settings, stored at the domain level as a virtual object consisting of a Group Policy container (**GPC**) and a Group Policy template (**GPT**). The **GPC**, which contains information on the properties of a GPO, is stored in Active Directory on each domain controller in the domain.

62. **What is RAID?**

Ans- Redundant Array of Inexpensive Disks is a data storage virtualization technology that combines multiple physical disk drive components into one or more logical units for the purposes of data redundancy, performance improvement, or both.

63. **Define RAID-0, RAID-1, RAID-3, RAID-5, RAID 0 1 and RAID 1 0.**

RAID 0, also known as disk striping, is a technique that breaks up a file and spreads the data across all the disk drives in a **RAID** group. The benefit of **RAID 0** is that it improves performance. If a drive should fail, there is no redundancy and all data would be lost.

RAID 1, also known as disk mirroring, is the replication of data to two or more disks. Disk mirroring is a good choice for applications that require high performance and high availability, such as transactional applications, email and operating

RAID 3, uses striping at the byte level and stores dedicated parity bits on a separate disk drive. RAID 3 requires a special controller that allows for the synchronized spinning of all disks.

RAID 5, is a **RAID** configuration that uses disk striping with parity. Because data and parity are striped across all of the disks, no single disk is a bottleneck. Striping also allows users to reconstruct data in case of a disk failure.

RAID 0 1, RAID 0 1, also called **RAID 0+1**, is a **RAID** level using a mirror of stripes, achieving both replication and sharing of data between disks. The usable capacity of a **RAID** 0 1 array is the same as in a **RAID 1** array made of the same drives, in which one half of the drives is used to mirror the other half.

RAID 1 0, configuration requires a minimum of four disks, and stripes data across mirrored pairs. As long as one disk in each mirrored pair is functional, data can be retrieved. If two disks in the same mirrored pair fail, all data will be lost because there is no parity in the striped sets.

Exchange Server 2013

64. **What is Exchange Server 2013?**

Ans- Microsoft **Exchange Server** is a mail **server** and calendaring **server** developed by Microsoft. It runs exclusively on Windows **Server** operating systems. Versions 4.0 and 5.0 came bundled with an email client called Microsoft **Exchange** Client. It was discontinued in favor of Microsoft Outlook.

65. **What are the edition of Exchange Server 2013?**

Ans- There are 2 editions of exchange server 2013

a) **Standard Edition**
b) **Enterprise Edition**

66. **What are the new features in Exchange server 2013?**

Ans- Following are the new features in Exchange Server 2013

a) OWA offline support
b) Site Mailboxes
c) **Optimized for Desktop**, **Slate** and **Phone browsers** UI layouts in OWA
d) **Integration with Lync and SharePoint**

67. **What are the Exchange Server 2013 Roles?**

a) **Ans-Client Access server-** The client access server (CAS) is a server role that handles all client connections to Exchange Server 2010 and Exchange 2013. The CAS supports all client connections to Exchange Server from Microsoft Outlook and **Outlook Web App**, as well as ActiveSync applications.
b) **Mailbox server-** Mailbox servers host the databases that contain mailbox and public folder data. Mailbox server role can be made highly available by configuring a Database Availability Group.

c) **Edge Transport server-** Message protection and security are handled by various agents that run on the **edge transport server** and act on email messages as they are processed. The **edge transport server** was discontinued as a **server role** in the **Exchange Server 2013** release.

68. **Where Exchange Server stores the exchange related information in Active Directory?**

Ans- Exchange Server stores the Exchange related information in Active Directory partitions, following are the details.

Domain Partition: Mail enable recipient, groups and contact related to domain level are stored.

Configuration Partition: Stores the Exchange configuration information like, policies, global settings, address list, connecters and it contains the information related to forest level.

Schema Partition: stores the Exchange specific classes and attributes.

69. **What are prerequisites to install Exchange Server 2013?**

Ans-

70. **What is Microsoft Office 365 Exchange Online?**

Ans- Microsoft's **Office 365** suite includes **Exchange Online**, which is a hosted messaging application that provides organizations with access to the full-featured version of **Exchange** Server. It includes access to email, calendars, contacts and tasks for any endpoint device.

71. **What is Auto discover and Availability Service in Exchange ?**

Ans- Exchange Auto discover is a web service that helps Microsoft **Exchange** administrators to configure user profile settings for clients running Outlook 2007, Outlook 2010, or Outlook **2013** and mobile phones running Windows Mobile 6.1 or later.

The Exchange 2013 **Availability service** makes free/busy information available to Outlook and Outlook on the web clients. The Availability service improves information workers' calendaring and meeting scheduling experience by providing secure, consistent, and up-to-date free/busy information.

72. **What is MX record ?**

Ans- A **Mail Exchanger** record (MX record) is a type of certified and verified resource record in the Domain Name System that specifies a mail server responsible for accepting email messages on behalf of a recipient's domain, and a preference value used to prioritize mail delivery if multiple mail servers are available.

73. **What is Mailbox Database?**

Ans- A **mailbox database** is a unit of granularity where **mailboxes** are created and stored. A **mailbox database** is stored as an **Exchange database** (.edb) file. In **Exchange** 2013, each **mailbox database** has its own properties that you can configure.

74. **What is Database portability in Exchange Server 2013?**

Ans- Database portability is a feature that enables a Microsoft Exchange Server 2013 mailbox **database** to be moved to or mounted on any other Mailbox server in the same organization running Exchange 2013 that has **databases** with the same **database** schema version.

75. **What is DAG in Exchange Server 2013?**

Ans- A database availability group (**DAG**) is a high availability (HA) and data recovery feature of **Exchange Server** 2013. A database availability group, which can consist of multiple **Exchange** mailbox **servers**, automates recovery at the database-level after a database, **server** or network failure.

76. **What is witness Server?**

Ans- The **Witness Server** can be defined as the addition **server**, which is not the member of the DAG and stores the Active copy of the Database. It acts as an observer and guarantees that Quorum is preserved in the Cluster.

77. **What is Public Folder in Exchange?**

***Ans*- Public folders** are a feature of Microsoft **Exchange** that are used to share information with others within your organization. **Public folder** administrators can set privileges for users to access a **folder**, or the **folder** can be made available to everyone within your organization.

78. **What is Activesync?**

***Ans*- Exchange ActiveSync** is a protocol which allows mobile devices to synchronize data with **Exchange** mailboxes. Synchronizing is a process of reconciling data between a device and the appropriate **Exchange** mailbox. The protocol synchronizes your mail, calendar, contacts, and tasks over the air with **Microsoft Exchange** Server.

79. **What is retention policy ?**

Ans- Retention Policies contain **Retention Tags**, which are settings you can use to specify when a message should be automatically moved to the archive or when it should be deleted. A **Retention Policy Tag** (RPT) is a type of **retention tag** that you can apply to default folders in a mailbox, such as Inbox and Deleted Items.

80. **What are Accepted Domain and Remote Domain?**

Ans-

Accepted Domain- An **Accepted Domain** is any SMTP namespace for which a Microsoft Exchange Server 2013 organization sends or receives email. Accepted domains include those domains for which the Exchange organization is authoritative.

Remote Domain- A *Remote Domains* is used to control various aspects of messages sent to recipients in ***domains*** that are external to the local ***Exchange*** organization.

81. **What are the type of mailbox can be created in Exchange server 2013?**

Ans- Following type of mailbox can be created in Exchange server 2013

a) User Mailbox
b) Shared Mailbox
c) Room Mailbox
d) Equipment Mailbox
e) Linked Mailbox

82. **?**

Ans- Flexible single master operation (**FSMO**) is a Microsoft Active Directory feature that is a specialized domain controller task used when standard data transfer and update methods are inadequate. Tasks that do not suit multimaster replication are only viable as flexible single-master operations. Following are the FSMO roles in Active Directory

f) **Schema Master**
g) **Domain-Naming-Master**
h) **Infrastructure Master**
i) **RID Master**
j) **PDC Emulator**

83. **What is site?**

Ans- Sites in *Active Directory* represent the physical structure, or topology, of your network. *Active Directory* uses topology information, stored as *site* and *site* link objects in the directory, to build the most efficient replication topology.

84. **What is OU?**

Ans- An Organizational Unit (***OU***) is a container within a Microsoft Active Directory domain which can hold users, groups and computers. It is the smallest unit to which an administrator can assign Group Policy settings or account permissions.

85. **What are Fine-Grained Passwords?**

Ans- Fine-Grained password policies are use to specify multiple password policies in a single domain and apply different restrictions for password and account lockout policies to different sets of users in a domain.

86. **What is NTDSUTIL?**

Ans- Ntdsutil.exe is a command-line tool for accessing and managing a Windows Active Directory (AD) database.

87. **What are RODCs?**

Ans- RODC is a new domain controller (DC) launched with Windows Server 2008. It lets you store an Active Directory (AD) domain database read-only copy on the DC.

88. **What is Additional Domain Controller (ADC)?**

Ans- An ***Additional Domain Controller*** is required for services redundancy and for domain authentication improvement in remote Site. ***Additional Domain Controllers*** avoid business discontinuity in case of server failure for the primary Domain Controller.

89. **What is Child Domain Controller?**

Ans- A **child domain** is another **domain** under a parent one in an active directory **domain** hierarchy. A **child domain** under a parent first root **domain** form a Tree. All Trees exists within a Forest, a forest is the security boundary.

90. **What is DNS Server?**

Ans- DNS Server is used to resolve FQDN (Fully Qualified Domain Name) in to IP address and vice versa.

91. **What is the post number of DNS?**

Ans- The port number of DNS is 53.

92. **What is forward lookup?**

Ans- Forward lookup is used to resolve FQDN name into IP address.

93. **What is reverse lookup?**

Ans- Reverse lookup is used to map IP address into FQDN name.

94. **What is resource record?**

Ans- It is a record provides the information about the recourses available in network infrastructure.

95. **What are Primary, Secondary, Stub and AD integrated zones?**

Primary Zone- DNS server hosts is a **primary zone** and it stores the master copy of **zone** data in a local file or in AD DS

Secondary Zone: Secondary **zone** is merely a copy of a **primary zone** that is hosted on another server, it cannot be stored in AD DS.

Stub Zone: A **stub zone** contains the list of authoritative **DNS** servers for a **zone** (domain) and host records that contain their IP addresses (known as glue records). It also contains the IP address of at least one master server for the **zone**.

Active Directory Integrated Zones- Active Directory integrated zone data is stored as an Active Directory object and is replicated as part of domain replication. This has the following advantages:

e) No single point of failure
f) Fault tolerance
g) Single replication topology
h) Secure dynamic updates

96. **What is the purpose of SRV records?**

Ans- SRV records are used in locating host that provides certain network services.

97. **What is SOA?**

Ans- Start of Authority record (abbreviated as ***SOA*** record) is a type of resource record in the Domain Name System (***DNS***) containing administrative information about the zone, especially regarding zone transfers.

98. **What is cache only DNS?**

Ans- Caching-only DNS servers don't actually host any zones and are not authoritative for any domains but rather just cache results from queries asked them by clients. If a client asks it to resolve.

99. **What is DNS Forwarder?**

Ans- A **forwarder** is a Domain Name System (**DNS**) server on a network used to forward **DNS** queries for external **DNS** names to **DNS** servers outside of that network. You can also forward queries according to specific domain names using conditional **forwarders**.

100. What is DDNS?

Ans- Dynamic DNS is a method of automatically updating a name server in the Domain Name System (DNS), often in real time, with the active DDNS configuration of its configured hostnames, addresses or other information.

101. What is a query and what are the types of query?

Ans- A request made by a DNS client to provide name server information is called a query. There are 2 types of DNS query

Iterative Query
An iterative name query is one in which a DNS client allows the DNS server to return the best answer it can give based on its cache or zone data. If the queried DNS server does not have an exact match for the queried name, the best possible information it can return is a referral.

Recursive Query
In Recursive name query, the DNS client requires that the DNS server respond to the client with either the requested resource record or an error message i.e. the record or domain name doesn't exist.

102. What is DHCP?

Ans- Dynamic Host Configuration Protocol (**DHCP**) is a network protocol that enables a **server** to automatically assign an IP address to a computer from a defined range.

103. What is the DHCP Client/Server process?

Ans-

f) The client computer sends a broadcast request (called a DISCOVER or DHCPDISCOVER), looking for a DHCP server to answer.
g) The router directs the DISCOVER packet to the correct DHCP server.
h) The server receives the DISCOVER packet. Based on availability and usage policies set on the server, the server determines an appropriate address (if any) to give to the client. The server then temporarily reserves that address

for the client and sends back to the client an OFFER (or DHCPOFFER) packet, with that address information. The server also configures the client's DNS servers, WINS servers, NTP servers, and sometimes other services as well.

i) The client sends a REQUEST (or DHCPREQUEST) packet, letting the server know that it intends to use the address.
j) The server sends an ACK (or DHCPACK) packet, confirming that the client has a been given a lease on the address for a server-specified period of time.

104. What is DHCP Scope?

Ans- DHCP scopes are used to define ranges of addresses from which a DHCP server can assign IP addresses to clients.

105. What are the DHCP Port number?

Ans- Requests are on UDP port 68, Server replies on UDP 67 .

106. What is DHCP Scope?

Ans- A **DHCP scope** is a valid range of IP addresses that are available for assignment or lease to client computers on a particular subnet.

107. What is Multi scope?

Ans- A ***superscope*** allows a ***DHCP server*** to provide leases from more than one ***scope*** to clients on a single physical network.

108. What is reservation in DHCP?

Ans- ***DHCP reservation*** is a feature in the ***DHCP*** server that allows the ***DHCP*** administrators to reserve one or more IP addresses for particular mission-critical computers only.

109. What is exclusion?

Ans- An **exclusion** removes an IP address or range of IP addresses from the pool of addresses that are given out by the **DHCP** server. The server will not give out **excluded** addresses.

110. What is DHCP lease?

Ans- A DHCP lease is the amount of time that the DHCP server grants to the DHCP client permission to use a particular IP address. A typical server allows its administrator to set the lease time.

111. What is DHCP Failover Clustering?

Ans- A failover cluster is a group of servers that work together to maintain high availability of applications and services. If one of the servers, or nodes, fails, another node in the cluster can take over its workload without any downtime (this process is known as failover).

112. What is DHCP Relay Agent?

Ans- A **DHCP relay agent** is any host that forwards **DHCP** packets between clients and servers. **Relay agent**s are used to forward requests and replies between clients and servers when they are not on the same physical subnet.

113. What is Hyper-V?

Ans- Hyper-V is Microsoft's virtualization platform, or 'hypervisor', which enables administrators to make better use of their hardware by virtualzing multiple operating systems to run off the same physical **server** simultaneously.

114. What are the type of network in Hyper-V?

Ans- There are three type of networks in Hyper-V

d) **Private Virtual Network:-** This type of switch is bound to the physical network cards located in the host.

e) **Internal Virtual Network:**- This switch is not bound to a physical network card so only allows traffic between VMs and the host.

f) **External Virtual Network:**- This type of switch is only used for virtual machines to communicate with each other.

115. **What is Virtual Machine Snapshots?**

Ans- A **Virtual Machine snapshot** is a copy of the **virtual machine's** disk file (VMDK) at a given point in time. **Snapshots** provide a change log for the **virtual** disk and are used to restore a VM to a particular point in time when a failure or system error occurs.

116. **What is Windows Deployment Service (WDS)?**

Ans- Windows Deployment Services is a **server** role that gives administrators the ability to deploy Windows operating systems remotely. **WDS** can be used for network-based installations to set up new computers so administrators do not have to directly install each operating system (OS).

117. **What is prerequisites for WDS?**

Ans- Following are the requirements for WDS

e) Active Directory Domain Services
f) DNS Server
g) DHCP Server
h) NTFS Partition

118. **What is WIM?**

Ans- The Windows Imaging Format (**WIM**) is a **file**-based disk image format. It was developed by Microsoft to help deploy Windows Vista and subsequent versions of Windows operating system family, as well as Windows Fundamentals for Legacy PCs.

119. **What is WSUS?**

Ans- Windows Server Update Services (WSUS), previously known as Software Update Services (SUS), is a computer program developed by Microsoft Corporation that enables administrators to manage the distribution of updates and hot fixes released for Microsoft products to computers in a corporate environment. WSUS downloads these updates from the Microsoft Update website and then distributes them to computers on a network. WSUS is an integral component of Windows Server.

120. What is group policy?

Ans- Group Policy is a hierarchical infrastructure that allows a network administrator in charge of Microsoft's Active Directory to implement specific configurations for users and computers. **Group Policy** can also be used to define user, security and networking **policies** at the machine level.

121. What is GPO?

Ans- Group policy object (GPO) is a collection of group policy settings. It can be created using a Windows utility known as the Group Policy snap-in. GPO affects the user and computer accounts located in sites, domains, and organizational units (OUs).

122. What is Group Policy Template (GPT) and Group Policy Container?

Ans- A GPO is a collection of Group Policy settings, stored at the domain level as a virtual object consisting of a Group Policy container (**GPC**) and a Group Policy template (**GPT**). The **GPC**, which contains information on the properties of a GPO, is stored in Active Directory on each domain controller in the domain.

123. What is RAID?

Ans- Redundant Array of Inexpensive Disks is a data storage virtualization technology that combines multiple physical disk drive components into one or more logical units for the purposes of data redundancy, performance improvement, or both.

124. Define RAID-0, RAID-1, RAID-3, RAID-5, RAID 0 1 and RAID 1 0.

RAID 0, also known as disk striping, is a technique that breaks up a file and spreads the data across all the disk drives in a **RAID** group. The benefit of **RAID 0** is that it improves performance. If a drive should fail, there is no redundancy and all data would be lost.

RAID 1, also known as disk mirroring, is the replication of data to two or more disks. Disk mirroring is a good choice for applications that require high performance and high availability, such as transactional applications, email and operating

RAID 3, uses striping at the byte level and stores dedicated parity bits on a separate disk drive. RAID 3 requires a special controller that allows for the synchronized spinning of all disks.

RAID 5, is a **RAID** configuration that uses disk striping with parity. Because data and parity are striped across all of the disks, no single disk is a bottleneck. Striping also allows users to reconstruct data in case of a disk failure.

RAID 0 1, RAID 0 1, also called **RAID 0+1**, is a **RAID** level using a mirror of stripes, achieving both replication and sharing of data between disks. The usable capacity of a **RAID** 0 1 array is the same as in a **RAID 1** array made of the same drives, in which one half of the drives is used to mirror the other half.

RAID 1 0, configuration requires a minimum of four disks, and stripes data across mirrored pairs. As long as one disk in each mirrored pair is functional, data can be retrieved. If two disks in the same mirrored pair fail, all data will be lost because there is no parity in the striped sets.

CCNA Routing and Switching

125. What is Network?

Ans- Network in general terms means a group of devices, connected with the help of some media in order to share some resources from a source to a destination and networking is a process of sharing the resources.

126. What is link?

Ans- Link is a physical or a logical component of a network to interconnect nodes or devices.

127. What is node?

Ans- Node is a connection point on network for data transmission. It can be a computer or printer or any type of device that is capable of sending and receiving the data over the network.

128. What is gateway?

Ans- Gateway is a node of a network which can be used as an entrance for other network. It is a piece of hardware and different from default gateway.

129. What is point-to-point link?

Ans- A connection between two nodes of the network is referred as point to point network and that link which connects both nodes is point to point link.

130. What is Multi-Access?

Ans- Multiple Access allows more than one devices to transmit data at the same time span. Star or Mesh topology can be used for this

131. What is the difference between OSI and TCP/IP Model ?

OSI(Open System Interconnection)	TCP/IP (Transmission Control Protocol / Internet Protocol)
OSI is a generic, protocol independent standard, acting as a communication gateway between the network and end user.	TCP/IP model is based on standard protocols around which the Internet has developed. It is a communication protocol, which allows connection of hosts over a network.
OSI model has a separate Presentation layer and Session layer.	TCP/IP does not have a separate Presentation layer or Session layer.
OSI is a reference model around which the networks are built. Generally it is used as a guidance tool.	TCP/IP model is, in a way implementation of the OSI model.
Network layer of OSI model provides both connection oriented and connectionless service.	The Network layer in TCP/IP model provides connectionless service.
Protocols are hidden in OSI model and are easily replaced as the technology changes.	In TCP/IP replacing protocol is not easy.
OSI model defines services, interfaces and protocols very clearly and makes clear distinction between them. It is protocol independent.	In TCP/IP, services, interfaces and protocols are not clearly separated. It is also protocol dependent.
It has 7 layers	It has 4 layers

132. What is IP Address?

Ans- An IP address is an unique identity of each device in the network.

133. What is the size of IP address?

Ans- IPv4 is a 32 bits address and IPv6 is 128 bits address..

134. What are the IP v4 Classes and their range?

Ans-

Class	Range

A	1-126
B	128-191
C	192-223
D	224-239
E	240-255

135. What is Subnet Mask?

Ans- A ***subnet mask*** is a 32-bit number used to differentiate the network component of an IP address by dividing the IP address into a network address and host address..

136. What is MAC address?

Ans- MAC address stands for Media Access Control address. This is an address of a device which is identified as the Media Access Control Layer in the network architecture. The MAC address is unique and usually stored in ROM.

137. Explain the terms Unicast, Multicast, Broadcast and Multicast?

Ans-
Unicast: It specifies one to one communication.
Multicast: It specifies one to a group communication.
Broadcast: It specifies one to all communication.
Multicast: It specifies one to nearest communication.

138. What is the difference between private IP and public IP?

Ans- Public IP is used across internet while private IP is used within the local LAN.

139. What is the range of Private IP address?

Ans-

Class	Private IP Range
A	10.0.0.0 to 10.255.255.255
B	172.16.0.0 to 172.31.255.255
C	192.168.0.0 to 192.168.255.255

140. What is the difference between ARP and RARP.

ANS- ARP stands for **Address Resolution Protocol**. ARP is a protocol that is used to map an IP address to a physical machine address. **RARP** stands for **Reverse Address Resolution Protocol**. RARP is a protocol that is used to map a MAC address to IP address.

141. What is subnetting and what are the advantage?

Ans- Subnetting is a way of dividing a big IP network into multiple small network. Following are the advantage of subnetting

a) Improving network performance and speed.
b) Reducing network congestion.
c) Boosting network security.
d) Controlling network growth.
e) Ease network administration.

142. What is the difference between broadcast domain and collision domain?

Ans- Broadcast domain is a domain where if a broadcast frame is forwarded, every devices pays attention and receives the data. While in Collision domain, chances of data collision is maximum. if two or more send traffic at the same time, data will collide in between and none of the devices will receive the data..

143. What is a Switch?

Ans- Switch is a Layer-2 device which connects multiple devices tighter in a LAN segment and filter the frames by examining MAC-Address.

144. What is Switching?

Ans- Switching is a process of migrating frames from one port to another. It occurs on Layer-2 and performed by a switch. There are 3 types of switching

a) Store and Forward
b) Cut Through

c) Fragment Free

145. What process a switch uses to create and maintain MAC-Address-Table?

Ans-Switch uses follow process to create and maintain MAC-Address-Table

a) Learning
b) Flooding
c) Filtering

146. What is port Security ?

Ans- Port security allows to limit MAC address to be learn on a port.

147. What are the types of MAC-Address-Table ?

Ans- There are 2 types of MAC-Address-Table

a) Static
b) Dynamic

148. What is STP?

Ans- Spanning Tree Protocol is used to avoid switching loops. The IEEE standard of STP is 802.1D.

149. What are the STP port stages?

Ans- Following are the STP port stages

a) Blocking
b) Listening
c) Learning
d) Forwarding
e) Disabled

150. How STP blocks a port to avoid loop?

Ans- STP takes following steps to block a port.

a) Root Bridge election
b) Root ports

c) Designated port
d) Blocking port

151. What is root bridge?

Ans- The **Root bridge** (switch) is a special **bridge** at the top of the Spanning Tree (inverted tree). The branches (Ethernet connections) are then branched out from the **root** switch, connecting to other switches in the Local Area Network (LAN). All **Bridges** (Switches) are assigned a numerical value called **bridge** priority.

152. How root bridge is selected?

Ans- A switch which has lowest **Priority** value will become the root bridge. If there is a tie in priority then the lowest MAC address will **determine** which **bridge** becomes the **root**.

153. What is portfast?

Ans- When you enable **PortFast** on the switch, **spanning tree** places ports in the forwarding state immediately, instead of going through the listening, learning, and forwarding states.

154. How to secure STP?

Ans- STP can be secured by Appling following security

a) BPDU Guard
b) BPDU Filter
c) Root Guard

155. What is RSTP?

Ans- In 2001, the IEEE introduced **Rapid Spanning Tree** Protocol (**RSTP**) as 802.1w.**RSTP** provides significantly faster spanning tree convergence after a topology change.

156. What are the RSTP port stages?

Ans- Following are the RSTP port stages

a) Discarding
b) Learning
c) Forwarding

157. What are the RSTP port roles?

Ans- Following are the RSTP port roles

a) Root port
b) Alternate port
c) Designated port
d) Backup port

158. What is PVST?

Ans- Per-VLAN Spanning Tree (**PVST**) maintains a spanning tree instance for each VLAN configured in the **network**. It uses ISL trunking and allows a VLAN trunk to be forwarding for some VLANs while blocking for other VLANs.

159. What is VLAN?

Ans- VLANs (Virtual LANs) are logical grouping of devices in the same broadcast domain. VLANs are usually configured on switches by placing some interfaces into one broadcast domain and some interfaces into another.

160. What is Management VLAN?

Ans- ***Management VLAN*** is used for managing the ***switch*** from a remote location by using protocols such as telnet, SSH, SNMP. By default VLAN-1 is called management VLAN or administrative VLAN.

161. What are Access and Trunk ports?

Ans- Trunk **port** is used to connect between **switches** to carry traffic of different VLANs and **access port** is used to connect to computers lap top printers etc.

162. What is VTP?

Ans- ***VTP*** (VLAN Trunking Protocol) is a Cisco proprietary protocol used by Cisco switches to exchange VLAN information.

163. What are the VTP modes?

Ans- There are 3 VTP modes

a) **VTP Server Mode:** Allows to create, modify and delete VLANs and advertise their VLAN configuration to other switches in the same VTP domain.
b) **VTP Client Mode:** Does not allow to create, modify and delete VLANs. It uses VLAN information of VTP Server.
c) **VTP Transparent mode:** Allows to create, modify and delete VLANs but the changes made only affect to that switch as it doesn't advertise its VLAN information.

164. What is Frame tagging?

Ans- Frame tagging is a process of adding VLAN information in the frame by sender switch before flooding a frame on the trunk port so that receiver switch can understand from which VLAN the frame belongs. there are 2 types of tagging

a) Inter-Switch-Link
b) IEEE 802.1Q

165. What is native VLAN?

Ans- Native VLAN is used to place untagged frames received on trunk port. By default VLAN-1 is configured as Native VLAN on trunk port.

166. What is Inter-VLAN-Routing?

Ans- ***Inter-VLAN routing*** is a process of forwarding network traffic from one VLAN to another VLAN using a router or layer 3 device.

167. What is Port-Aggregation or Ether-Channel?

Ans- Ether Channel or **Port Aggregation** allows grouping of several physical Ethernet links to create one logical Ethernet link for the purpose of providing fault-tolerance and high-speed links between switches.

168. What are the ways to create Ether Channel on Cisco Switch.

Ans- Following are the ways to create Ether Channel on Cisco switch

a) Static or Manual
b) Using Port Aggregation Protocol (PAgP)
c) Using Link Aggregation Control Protocol (LACP)

169. **What are components of Cisco router?**

Ans- A Cisco router has following components

a) Processor
b) ROM (BIOS)
c) RAM
d) NVRAM
e) Flash Memory
f) Configuration Register

170. **What is CDP?**

171. **Ans-** The Cisco Discovery Protocol (CDP) is a Cisco proprietary Layer 2 (Data Link Layer) network protocol developed by Cisco to share information about other directly connected Cisco devices, such as the operating system version and IP address.

172. **Cisco Discovery Protocol (CDP) message contain information about**

- IOS software version
- Name of the device (configured with hostname command)
- Hardware capabilities (routing/switching)
- Hardware platform
- The IP addresses of the device
- The interface which generated the Cisco Discovery Protocol (CDP) message

173. **What are the CDP Timers?**

Ans- The default CDP advertisement timer is **60 Sec** and Hold timer is **180 Sec.**

174. **What is Router boot Sequence**

Ans- Router boot sequence

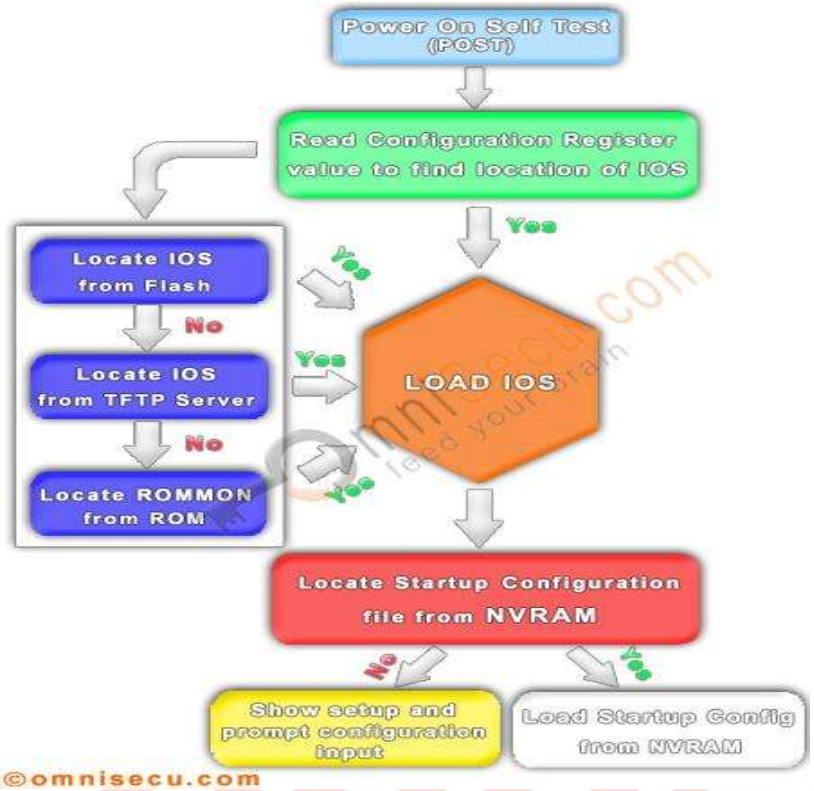
a) **On power on Cisco router first will perform the POST(Power on self test)**. The POST tests the hardware to verify that all components of the device are operational and present. For example, the POST checks for the different interfaces on the router. The POST is stored in and run from ROM (read-only memory).

b) **The bootstrap looks for and loads the Cisco IOS software**. The bootstrap is a program in ROM that is used to execute programs. The bootstrap program is responsible for finding where each IOS program is located and then loading the file. By default, the IOS software is loaded from flash memory in all Cisco routers.

c) **The IOS software looks for a valid configuration file stored in NVRAM**. which is called as startup-config.

d) **If a startup-config file is in NVRAM**, the router will load and run this file. The router is now operational. If a startup-config file is not in NVRAM, the router will start the setup-mode configuration upon bootup.

e) Any further modification on running router will be stored on RAM, where you need to manually execute command **copy running-config startup-config** to make your current configuration as a startup-config, every time you boot your router.



175. What are the feature of a router?

Ans- Following are the feature of a router

a) Provides Traffic Management
b) Do not broadcast traffic

c) Connect Different Networks

176. What are the Ports/Interface on a Cisco Router?

Ans- Cisco router has following Ports/Interfaces

a) Ethernet or LAN Interface
b) Serial Interface
c) Auxiliary Port
d) Console Port

177. What is Cisco IOS and its features?

Ans- IOS (Internetworking Operating System)is a package of routing, switching, internetworking and telecommunications functions integrated into a multitasking operating system. Following are the core feature of IOS

a) Support for different technologies
b) Scalability
c) security

178. What are the basic IOS mode in Cisco router?

Ans- Following are the basic IOS modes in Cisco router

a) User Exec Mode
b) Privileged Exec Mode
c) Global Configuration Mode

179. What are the default terminal settings for configuring Cisco Devices?

Ans- Terminal Settings

Bits Per Second	9600
Data Bits	8
Parity	None
Stop Bit	1
Flow Control	None

180. What is Routing?

Ans- Routing is a process of transferring packets from one network to another by selecting the best route.

181. What is Static Routing?

Ans- Static routing is a form of **routing** that occurs when a **router** uses a manually-configured **route** to forward a packets.

182. What is default route or last resort?

Ans- Default route or **Last resort** defines the packet forwarding rule to use when no specific **route** can be determined for a given Internet Protocol (IP) destination address. All packets for destinations not established in the **routing** table are sent via the **default route**.

183. What is dynamic route?

Ans- Dynamic routing provides optimal data **routing**. Unlike static **routing**, **dynamic routing** enables **routers** to select paths according to real-time logical network layout changes

184. What is Metric?

Ans- Metrics are some calculations or values used by routing protocols to select the best path to reach a destination. Following are the metrics used by routing protocols

a) Hop Count
b) Bandwidth
c) Delay
d) Load
e) Cost
f) Reliability

185. What is Administrative Distance?

Ans- Administrative distance is a numerical value (Ranging 0-255) used by routers to select the best path when there are two or more different routes to the same

destination from two different routing protocols. **Administrative distance** defines the reliability of a routing (Least numerical value means highly reliable route)

Directly Connected Route	0
Static Route	1
EIGRP Summary Route	5
External BGP Routes	20
Internal EIGRP Routes	90
IGRP Route	100
OSPF Route	110
IS-IS routes	115
RIP Routes	120
EGP Routes	140
ODR Route	160
External EIGRP Routes	170
Internal BGP Routes	200
Unknown*	255

186. What is Autonomous System (AS)?

Ans- An *Autonomous System* (AS) is a *network* or a collection of *networks* that are all managed and supervised by a single entity or organization.AS can be assigned on the routers using numerical numbers ranging 1-65535 (1-64511 Globally unique, 64512-65531 Private)

187. What is RIP? What are the properties of RIP

Ans- Routing Information Protocol (RIP) is a **Distance Vector Routing Protocol** which has following properties

a) It is an Open Standard routing protocol.
b) It can be deploy in a small network as supports 15 hops.
c) It sends out periodic routing updates after every 30 Sec. the Invalid timer of RIP is 180 Sec, Hold timer is 180 Sec and Flush timer is 240 Sec
d) It sends out the full routing table every periodic updated to its connected neighbor.

e) It uses **Hop Count** as metric.
f) The default AD value of RIP is 120.
g) It supports IP and IPX routing.
h) It utilizes UDP port 520.
i) It has 2 Versions (Ver-1 and Ver-2)

188. What are the differences between RIP Ver-1 and Ver-2?

Ans-

RIP Ver-1	RIP Ver-2
It doesn't include subnet mask in the routing updates, because of this it doesn't support VLSM.	It includes subnet mask in the routing updates, because of this it supports VLSM.
It is class full routing protocol.	It is class less routing protocol.
Routing updates are sent as broadcast using 255.255.255.255	Routing updates are sent as multicast using 224.0.0.9
It sends ver-1 updates but can receive both ver-1 and ver-2	It sends and receive only ver-2 updates.
It doesn't support authentication and encryption.	It supports authentication and encryption.

189. What is Split Horizon, Route Poisoning and Hold-Down Timer?

Ans- Split Horizon- It prevents routing updates from being sent out the interface it was received on. Split horizon is by default enabled on Cisco router.

Route Poisoning- Works in conjunction with split-horizon, by **triggering** an automatic update for the failed network, without waiting for update timer to expire.

Hold-Down Timer- It prevents RIP from accepting any new updates for routes in a hold down state, until the hold-down timer expires.

190. What is EIGRP? What are the properties of EIGRP?

Ans- Enhanced Interior Gateway Routing Protocol (EIGRP) is a Balance hybrid routing protocol which has following properties

a) It was developed by Cisco as an enhanced version of IGRP.
b) It can be use in a large network as it supports a maximum of 255 hops (100 default)
c) It sends **"only changes"** in routing table to its neighbor.
d) It will form the neighbor ship with adjacent router in same AS **(Autonomous System)**
e) It supports IP, IPX and Apple Talk routing.
f) It uses Bandwidth (K1) and Delay (K3) as default metric. Optional metrics are Load (K2), Reliability (K4) and MTU (K5).
g) The default AD of EIGRP is 90 (Internal Routes) and 170 (External Routes)
h) EIGRP traffic is either sent as Unicast or as Multicast on address 224.0.0.100 depending on the packet type.
i) Reliable Transport Protocol (RTP) is use to ensure delivery of most EIGRP packets.
j) EIGRP is a class less routing protocol and supports VLSM.
k) It supports both Encryption and Authentication.

191. What are the different EIGRP Tables?

Ans- EIGRP builds 3 separate tables

a) Neighbor Table
b) Topology Table
c) Route Table

192. What are the default hello and hold timer of EIGRP?

Ans- For the high speed links the default hello timer is 5 Sec and Hold timer is 15 Sec, For slower WAN link the hello timer is 60 Sec and hold timer is 180 Sec.

193. What is Successor, Feasible Successor and Possibilities?

Ans- The best route (Based on enabled metrics) to reach any destination is called **Successor** and Alternate or Backup route is called **Feasible Successor** and all other possible routes are called **Possibilities**.

194. What is SIA (Stuck In Active) in EIGRP?

Ans- When EIGRP losses a route and there is no feasible successor the route will go from Passive to Active and router will start sending queries to its neighbors. If neighbors don't know anything, In this case neighbors will not send back reply of the query, router waits for reply 180 sec after it moves to **Stuck In Active** situation.

195. What are the packets used in EIGRP?

Ans- Following are the EIGRP packets

a) Hello
b) Acknowledgement
c) Updates
d) Query
e) Reply

196. What is OSPF? What are the properties of OSPF?

Ans- Open Shortest Path First (OSPF) is a Link State routing protocol which has following properties

a) It employs a hierarchical design using **Areas.**
b) It is open standard and has no hop count limitation.
c) It will form the neighbor ship with adjacent router in same Area.
d) It advertise the status of directly connected **Links** using **Link State Advertisements (LSA)**
e) It sends updates when there is a change to one of its links, and will only send the **"changes"** in the update.
f) OSPF traffic is multicast either to address **224.0.0.5** (All OSPF routers) or **224.0.0.6** (All designated routers)

g) It uses **Dijkstra Shortest Path First** algorithm to determine the shortest path.
h) It uses **Cost** as a Metric.
i) It supports IP routing only.
j) The default Administrative Distance of OSPF is 110.

197. What are the Advantages and Disadvantages of using OSPF?

Ans

OSPF Advantages

a) Open Standard Protocol
b) Scalable
c) Hierarchical design
d) Multicasting

OSPF Disadvantages

a) Routers require large memory
b) Routers require greater CPU power
c) Complex Usability
d) Perfect Planning

198. What are the OSPF LSA types?

Ans- Following are the OSPF LSA types

a) Router LSA (Type-1)
b) Network LSA (Type-2)
c) Network Summary LSA (Type-3)
d) ASBR Summary LSA (Type-4)
e) External LSA (Type-5)
f) Multicast OSPF LSA (Type-6)
g) NSSA External LSA (Type-7)

199. What are the OSPF Network Types?

Ans- Following are the OSPF Network types

a) Broadcast Multi-Access
b) Point-to-Point
c) Point-to-Multipoint
d) Non-broadcast Multi-Access

200. What are the OSPF Area Type?

Ans- Following are the OSPF Area type

a) Backbone Area
b) Standard Area
c) Stub Area
d) Totally Stubby Area
e) Not-so-Stubby Area

201. What are the OSPF Neighbor States?

Ans- Following are the OSPF Neighbor States

a) Down
b) Init
c) 2-Way
d) ExStart
e) Exchange
f) Loading
g) Full

202. What are DR (Designated Router) and BDR (Backup Designated Router) in OSPF?

Ans- When multiple **OSPF** routers are connected to a multi-access medium such as Ethernet, a Designated Router (**DR**) and a Backup Designated Router (**BDR**) are elected. **DR's** reduce network traffic as only they maintain the complete **OSPF** database and then send updates to the other routers on the shared network segment.

203. What are virtual links in OSPF?

Ans- All areas in an Open Shortest Path First (**OSPF**) autonomous system must be physically connected to the backbone area (Area 0). In some cases, where this is not possible, you can use a **virtual link** to connect to the backbone through a non-backbone area.

204. What are the OSPF Timers

Ans- The hello interval for **Broadcast** and **Point-to-Point network** is **10 Sec** and Dead Interval is **40 Sec**. For **Non-Broadcast** and **Point-to-Multipoint** network the hello interval is **30 Sec** and death interval is **120 Sec**.

205. What is Access Control List (ACL)

Ans- ACL is a firewall technology configured on routers to inspect incoming and outgoing traffic.

206. What are common ACL supported on Cisco routers?

Ans- The common Cisco router supported ACL are

a) Standard
b) Extended

207. What are Standard and Extended ACLs?

Ans-

Standard ACL- A **standard ACL** can permit or deny traffic based only on the source address(s).

Extended ACL- extended **ACL** can permit or deny traffic based on both the source and destination address(s) as well as tcp/udp/icmp trafic types.

208. What are the way to configure ACL on Cisco routers.

Ans- Both **Standard** and **Extended** ACL can be configured on Cisco router using numbered or named.

209. What is Primary number range of Standard and Extended ACL?

Ans- The primary number range of **Standard** ACL is **1-99 and** of **Extended** ACL is **100-199.**

210. What is inflict deny?

Ans- The IP **ACL** is a sequential collection of permit and **deny** conditions that apply to an IP packet. The router tests packets against the conditions in the **ACL** one at a time if no conditions match, the router rejects the packet because of an **implicit deny** all clause**.**

211. What are the Redundancy and Load balancing protocol supported on Cisco Devices?

Ans- HSRP, VRRP (Redundancy) and **GLBP (Redundancy and Load Balancing)** are supported on Cisco Devices?

212. What is HSRP?

Ans- Hot Standby Redundancy Protocol (HSRP) is Cisco proprietary routing protocol that allows host computers on the Internet to use multiple routers that act as a single virtual router, maintaining connectivity even if the first hop router fails, because other routers are on "hot standby" .

213. What are the different roles of Routers in HSRP group?

Ans- Following are the roles of routers in HSRP Group

a) **Active Router-** Router with highest priority and currently serving as gateway. Only one router can be Active in a HSRP group.
b) **Standby Router-**Backup router to the Active router. Only one router can be Standby in a HSRP group.
c) **Listening Router-** All other routers participating in HSRP group.

214. What is VRRP?

Ans- Unlike HSRP which is Cisco proprietary, ***VRRP*** is a Redundancy ***Protocol*** which operates in a network with multi-vendor devices. ***VRRP*** offers the same benefits of HSRP, ***VRRP*** operates similar to HSRP by electing an active router called the Master among a group of routers that stores a configured virtual IP and MAC address.

215. What are the different roles of Routers VRRP group?

Ans- The router with the highest priority becomes the **Master** router and all other routers become **backup** routers.

216. What are the differences in HSRP and VRRP?

Ans-

HSRP	VRRP
Routers are assigned 3 different roles : **1-Active Router** **2-Standby Router** **3-Listening Router**	One router is elected as **Master** and Others are **Backup**
Hello packets are sent every **3 Sec.**	Hello packets are sent every **1 Sec**.
Hold down timer is **10 Sec**.	Hold down timer is **3* Sec**.
Hello packets are set to multicast address **224.0.0.2**	Hello packets are set to multicast address **224.0.0.18**
Preempt feature is disabled by default.	**Preempt** feature is enabled by default.
Cisco Proprietary.	Open Standard.
It uses UDP port **1985.**	It uses UDP port **112.**

217. What is GLBP (Gateway Load Balancing Protocol)?

Ans- Gateway Load Balancing Protocol (GLBP) is a Cisco proprietary solution for redundancy and load balancing in an IP network. GLBP allow automatic selection and simultaneous recovery from first hop router failures. GLBP provides load balancing over multiple (router) gateways using a single virtual IP address and multiple virtual MAC addresses.

218. What are the different roles of Routers in HSRP group?

Ans- Following are the role of routers in GLBP group

a) Active Virtual Gateway

b) Active Virtual Forwarder
c) Secondary Virtual Forwarder

219. What are the GLBP load balancing methods?

Ans- GLBP supports three load balancing methods

a) Round Robin
b) Weighted
c) Host-dependent

220. What is NAT?

Ans-Network Address Translation is an IETF standard that allows a router to translate Private IP address into Public IP address when they want to communicate in Public Network

221. What are the advantages of NAT?

Ans- Following are the advantages of NAT

a) It allows multiple LAN devices to communicate using a single or few public IP address (PAT).
b) LAN devices don't need to change their IP addresses while communication in LAN and Public network.
c) It prevents address overlapping.
d) It conserves legally registered IP addresses.
e) It provides security by hiding internal (Private) IP address.

222. What are the different types of NAT?

Ans- Static NAT- It allows one to one mapping (Fixed IP) between private and public addresses. It allows both incoming and outgoing connections.

Dynamic Nat-It allows dynamic mapping between private and public address. it allows only outgoing connection.

Port Address Translation (PAT)- it allows multiple LAN devices to connect to public network using a single public IP address because it works on translating

source port address rather than translating their IP address. It is also called **Dynamic NAT with overload**.

223.What are Inside Local, Inside Global, Outside Local and Outside Global address?

Ans

a) **Inside Local Address** is an IP address of the host before translation.
b) **Inside Global Address** is the public IP address of host after translation.
c) **Outside Local Address** is the actual address of the destination.
d) **Outside Global Address** is the public IP address assigned to destination.

224. What is Network Time protocol?

Ans- The Network Time Protocol (NTP) is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. NTP uses UDP 123 as its transport layer. It is designed particularly to resist the effects of variable latency.

225.What are the advantages of NTP?

Ans- Following are the advantages of NTP Server

a) Accurate and Reliable Time on all the devices
b) Security and verifiable Audit trail
c) Manageability and ease of use

226.What is stratum

Ans- Network Time Protocol is a hierarchical protocol and is divided into **stratum** which define the distance from the reference clock. A reference clock source that relays UTC (Coordinated Universal Time) time and has little or no delay is known as a **stratum**-0 device

227.What are the way to configure NTP?

Ans- NTP can be configured in two ways

a) **Client/Server:** The NTP client is configured to always get its time information from the NTP Server. The server will never get its time from the client.
b) **Peer-to-Peer:** Peered NTP devices can get their time from each other, depending on who is closest to the time source (Lowest stratum).

228. **What is a log?**

Ans- A log is an information of any event which occurs in the device. these logs are also called **traps**.

229. **What are the different traps and their severity levels in Cisco devices?**

Ans- Following are the traps and their severity levels in Cisco Devices

Trap	Severity Level
Emergencies	0
Alerts	1
Critical	2
Errors	3
Warning	4
Notification	5
Informational	6
Debug	7

230. **What is Syslog?**

231. **Ans-** Syslog is a logging mechanism in network devices used to collect system logs which contains critical information about the status, errors, warning, configuration logs etc., of the devices. Cisco Routers and Switches use Syslog for tracking system logs and alerts.

232. **What is SNMP?**

Ans- Simple Network Management Protocol (***SNMP***) is a set of protocols for network management and monitoring. These protocols are supported by many

typical network devices such as routers, hubs, bridges, switches, servers, workstations, printers, modem racks and other network components and devices. It utilizes UDP port 161.

233. What is SNMP agent and manager?

Ans- A **manager** or **management** system is a separate entity that is responsible to communicate with the **SNMP** agent implemented network devices. This is typically a computer that is used to run one or more network **management** systems. **SNMP Manager's** key functions. Queries agents. Gets responses from agents.