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Hardware Networking

## TERM-1 Comptia A+ N+ Assignment

#### Module 1 [Hardware and its components] Topic: The Visible Computer

##### Assignment Level Basic

* 1. What is hardware?
* Hardware refer to physical device used in an computer system which can be touched by our hand eg. Mouse, CPU, Keyboard etc.
  1. What is the purpose of Hardware?
* Hardware refers to the physical, tangible computer equipment and devices, which provide support for major functions such as input, processing (internal storage, computation and control), output, secondary storage (for data and programs), and communication.

##### Level Intermediate

* 1. list out two types of hardware.
* 1.internalhardwareparts(components)

2. external hardware devices(peripherals)

##### Assignment Level Advance

1. What is core hardware

* In summary, a core is a small CPU or processor built into a big CPU or CPU socket. It can independently perform or process all computational tasks.

1. Do a practical of identifying hardware

* Done

#### Topic: Category of components

##### Assignment Level Basic

1. What are the category of components in hardware?
2. Why category is needed?

##### Assignment Level Intermediate

1. Do a practical to identify the components in which category they come.

#### Topic: Input Device.

##### Assignment Level Basic

1. What is input device?

* In computing, an input device is a piece of equipment used to provide data and control signals to an information processing system, such as a computer or information appliance. Examples of input devices include keyboards, mouse, scanners, cameras, joysticks, and microphones.

1. Why input device needed?

* Today, input devices are important because they are what allows you to interact with and add new information to a computer. For example, if a computer had no input devices, it could run by itself but there would be no way to change its settings, fix errors, or other various user interactions.

##### Assignment Level Intermediate

1. List out the input device.

* Following are some of the important input devices which are used in a computer

1. Keyboard
2. Mouse
3. Joy Stick
4. Light pen
5. Track Ball
6. Scanner
7. Graphic Tablet
8. Microphone
9. Magnetic Ink Card Reader(MICR)
10. Optical Character Reader(OCR)
11. Do a practical to identify input device and describe how it works.

* Done

#### Topic: Output Device

##### Assignment Level Basic

1. What are output device?

* An output device is any hardware device used to send data from a computer to another device or user. Usually, most output peripherals are meant for human use, so they receive the processed data from the computer and transform it in the form of audio, video, or physical reproductions.

1. how does output device work?

* An output device works by receiving a signal from the computer and using that signal to perform a task to display the output. For example, below is a basic list of the steps of how an output device works. On a computer keyboard (input device), if you type "H", it sends (inputs) a signal to the computer.

##### Assignment Level Intermediate

1. List out the output device.

* The various output devices are:
  + - 1. Monitor
      2. Printer
      3. Plotter
      4. Projector
      5. Speakers
      6. Headphones
      7. Sound Card
      8. Video Card

1. Do a practical to identify the output device and describe its working process.

* Done

#### Topic: Motherboard

##### Assignment Level Basic

1. What is motherboard?

* A motherboard is the main printed circuit board (PCB) in a computer. The motherboard is a computer's central communications backbone connectivity point, through which all components and external peripherals connect.

1. Why it is called motherboard?

* The motherboard gets its name because it's the main circuit board in the PC and can be extended by plugging other circuit boards into it. Just as 'the mothership' is known as the central point to which other 'ships' would report, the motherboard plays the same role.

##### Assignment Level Intermediate

1. What it is called if we remove all components from the motherboard?

* Re-assembling.

1. Describe types of motherboard.

* Below are the six different types of Motherboards:

1. AT Motherboard
2. ATX Motherboard
3. LPX Motherboard
4. BTX Motherboard
5. Pico BTX motherboard
6. Mini ITX motherboard.

##### Assignments level Advance:

1. Do a practical by identifying parts of motherboard.

* Done

1. Do a practical by describing the data flow in motherboard.

* Done

1. Do a practical by removing all removable parts from the motherboard.

* Done

#### Topic: CPU

##### Assignment Level Basic

1. What is CPU.

* The Central Processing Unit (CPU) is the primary component of a computer that acts as its “control center.” The CPU, also referred to as the “central” or “main” processor, is a complex set of electronic circuitry that runs the machine's operating system and apps.

1. Write the full form of CPU.

* Central Processing Unit.

##### Assignment Level Intermediate

1. What are the types of CPU?

* There are 6 types of central processing units Single Core Cpu, Dual Core Cpu, Quad Core Cpu, Hexa Core Cpu, Octa Core Cpu, and Deca Core Cpu.

1. What do we need to keep the CPU Healthy?

* To keep CPU Healthy
  + - 1. Use hard to guess passwords
      2. Always be suspicious of unexpected email and attachments
      3. Regularly download security updates
      4. Understand the risks associated with file sharing
      5. Use a firewall
      6. Use anti-virus software
      7. Use anti-spyware software

##### Assignment Level Advance

1. Do a practical to remove processor and apply thermal paste in it and install it again.

* Done

1. Do a practical to Identify CPU and its Sockets.

* Done

#### Topic: Monitor

##### Assignment Level Basic

* 1. What is Monitor?
* A monitor is an electronic visual computer display that includes a screen, circuitry and the case in which that circuitry is enclosed.

##### Assignment Level Intermediate

1. List out the types of monitor.

* Are there only three main types of monitors for computers?

1. CRT – Cathode Ray Tube.
2. LCD – Liquid Crystal Display.
3. LED – Light Emitting Diodes.
4. Do a practical to identify monitor Technology.

* Done

1. What are the Technologies used in monitor.

* Monitor Display Technology,Most desktop displays use liquid crystal display (LCD) or cathode ray tube (CRT) technology, while nearly all portable computing devices such as laptops incorporate LCD technology.

##### Assignment Level Advance

* 1. Describe how does the crt monitor works.
* The operation of a CRT monitor is basically very simple. A heating element in a CRT heats the cathode and causes it to emit electrons which are accelerated and focused on a phosphor screen by means of high voltage grids. An image (raster) is displayed by scanning the electron beam across the screen.

#### Topic: system bus

##### Assignment Level Basic

* 1. What is system bus
* The computer system bus is the method by which data is communicated between all the internal pieces of a computer. It connects the processor to the RAM, to the hard drive, to the video processor, to the I/O drives, and to all the other components of the computer.

##### Assignment Level Intermediate

1. List out the types of system bus.

* Three types of bus are used. Address bus - carries memory addresses from the processor to other components such as primary storage and input/output devices. The address bus is unidirectional . Data bus - carries the data between the processor and other components.

1. Describe the working of system bus.

* A system bus is a facet of computer architecture that transmits and shares data throughout the computer and between devices. It's the primary way for a computer to process information because it connects the main processor to all other internal hardware components of a computer

1. Do a practical to identify the system bus.

* Done

#### Topic: Chipset

##### Assignment Level Basic

* 1. What is chipset
* An electronic chipset manages the flow of data between components on a motherboard. It's the traffic controller between the CPU, GPU, RAM, storage, and peripherals. Experts have referred to it as the “glue” of the motherboard.

##### Assignment Level Intermediate

1. What are the types of chipset?

* There are 2 types of chipset

1. Northbridge chipset
2. Southbridge chipset
3. Which chipset does have direct contact with the cpu.

* The southbridge is one of the two chips in the core logic chipset on a personal computer (PC) motherboard, the other being the northbridge.

1. Do a practical to identify the chipset

* Done

##### Assignment Level Advance

* 1. Describe how does the Northbridge chipset work
* Northbridge is an Intel chipset that communicates with the computer processor and controls interaction with memory, the Peripheral Component Interconnect (PCI) bus, Level 2 cache, and all Accelerated Graphics Port (AGP) activities. Northbridge communicates with the processor using the frontside bus (FSB).

#### Topic:Memory

##### Assignment Level Basic

1. What is memory?

* Computer memory is any physical device capable of storing information temporarily, like RAM (random access memory), or permanently, like ROM (read-only memory).

1. What are the types of memory?

* There are technically two types of computer memory: primary and secondary. The term memory is used as a synonym for primary memory or as an abbreviation for a specific type of primary memory called random access memory (RAM).

##### Assignment Level Intermediate

1. Describe memory in detail.

* Information processing begins in sensory memory, moves to short-term memory, and eventually moves to long-term memory. Maintenance rehearsal and chunking are used to keep information in short-term memory. The capacity of long-term memory is large, and there is no known limit to what we can remember.
* As types: Explicit memory; Implicit memory
* As stages: Sensory memory; Short-term memo...
* As processes: Encoding; Storage; Retrieval

1. What are memory types.

* There are technically two types of computer memory: primary and secondary. The term memory is used as a synonym for primary memory or as an abbreviation for a specific type of primary memory called random access memory (RAM).

##### Assignment Level Advance

1. Do a practical to identify memory types.

* Done

1. Do a practical to install memories in system

* Done

1. Do a practical to identify main memory frequencies.

* Done

#### Topic: System Unit

##### Assignment Level Basic

* 1. What is System Unit?
* A system unit is the part of a computer that houses the primary devices that perform operations and produce results for complex calculations.

##### Assignment Level Intermediate

1. How does system unit work?

* A system unit is the part of a computer that houses the primary devices that perform operations and produce results for complex calculations. It includes the motherboard, CPU, RAM and other components, as well as the case in which these devices are housed.

1. What are the components and system unity?

* The basic structure of the system unit includes the following components: Motherboard — the primary device of the system unit. All other devices are connected to it. The motherboard unites all computer devices (video card, RAM, sound card, hard drive, etc).

##### Assignment Level Advance

1. Do a practical to identify system unit.

* Done

1. Do a practical to assemble and disassemble system unit.

* Done

#### Topic: BIOS

##### Assignment Level Basic

* 1. What is bios.
* BIOS (basic input/output system) is the program a computer's microprocessor uses to start the computer system after it is powered on. It also manages data flow between the computer's operating system (OS) and attached devices, such as the hard disk, video adapter, keyboard, mouse and printer.

##### Assignment Level Intermediate

* 1. What is the full form of bios
* Basic input/output system

2.Describe working process of BIOS.

* BIOS Process several thing on start up of system such as.

1. Check the CMOS Setup for custom settings.
2. Load the interrupt handlers and device drivers.
3. Initialize registers and power management.
4. Perform the power-on self-test (POST)
5. Display system settings.
6. Determine which devices are bootable.
7. Initiate the bootstrap sequence.

##### Assignment Level Advance

1. Do a practical to reset bios when system is on.

* Done

1. Do a practical of Hard resetting the BIOS.

* Done

1. Do a practical of identifying BIOS chip from the motherboard

* Done

#### Topic: CMOS

##### Assignment Level Basic

1.What is CMOS?

* Complementary metal-oxide-semiconductor (CMOS) is a small amount of memory on a computer motherboard that stores the Basic Input/Output System (BIOS) settings. The BIOS is the software stored on the memory chip on the motherboard.

##### Assignment Level Intermediate

1. What is the full form of CMOS?

* The full form of CMOS is the Complementary Metal Oxide Semiconductor.

1. Describe the working process of CMOS.

* CMOS is used to explain the amount of memory on the motherboard of the computer that will store in the settings of BIOS. These settings mainly include the date, time, and settings of hardware. TTL is a digital logic circuit where bipolar transistors work on DC pulses.

##### Assignment Level Advance

1. Do a practical of identifying cmos.

* Done

1. Do a practical of installing cmos

* Done

1. How do we know that cmos is not working.

* Done

#### Topic: Boot process

##### Assignment Level Basic

1.What is Boot Process?

* To boot up is to start up a computer system by providing it with the required electrical power and loading the startup services until the operating system is loaded. It refers to the process of starting a computer from a dead or offline state, thus making it available to perform any computing operation.

##### Assignment Level Intermediate

1. What is the first process of boot?

* Booting is basically the process of starting the computer. When the CPU is first switched on it has nothing inside the Memory.

1. What is the final stage in the boot process?

* Once the user's selection has been recorded, the bootloader moves on to the last and final stage of the boot process. Depending on the OS and the type of kernel, the bootloader will load the kernel image from the path specified in the configuration file (with the help of any submodules, if needed) into the memory.

1. Describe the boot process in Linux?

* Stages of Linux Boot Process: The machine's BIOS or boot microcode hundreds and runs a boot loader. Boot loader finds the kernel image on the disk and loads it into memory, to start the system. The kernel initializes the devices and their drivers.

##### Assignment Level Advance

1. Describe about working with the grub bootloader.

* GRUB. GRUB stands for GRand Unified Bootloader. Its function is to take over from BIOS at boot time, load itself, load the Linux kernel into memory, and then turn over execution to the kernel. Once the kernel takes over, GRUB has done its job and it is no longer needed.

1. Describe working process of boot loader.

* A Bootloader is a program that allows you to load other programs via a more convenient interface like a standard USB cable. When you power-up or reset your microcontroller board, the bootloader checks to see if there is an upload request. If there is, it will upload the new program and burn it into Flash memory.

#### Topic: SMPS

##### Assignment Level Basic

1. What is SMPS?

* The full form of SMPS is Switched Mode Power Supply also known as Switching Mode Power Supply.

1. What is the process of SMPS?

* A switched-mode power supply (SMPS) is an electronic circuit that converts power using switching devices that are turned on and off at high frequencies, and storage components such as inductors or capacitors to supply power when the switching device is in its non-conduction state

##### Assignment Level Intermediate

1. DO a practical to install SMPS.

* Done

1. How many sata connectors are there in normal smps?

* There are total six power outlet (Connector) on SMPS. 1.20 + 4 Pin ATX / Motherboard Connector.

##### Assignment Level Advance

1. Do a practical to troubleshoot a smps without plugging it to the system.

* Done

1. How many pins does atx power connector have?

* An ATX power supply provides a number of peripheral power connectors and (in modern systems) two connectors for the motherboard: an 8-pin (or 4+4-pin) auxiliary connector providing additional power to the CPU and a main 24-pin power supply connector, an extension of the original 20-pin version.

#### Topic: RAM

##### Assignment Level Basic

1. What is RAM?

* RAM stands for random-access memory, but what does that mean? Your computer RAM is essentially short term memory where data is stored as the processor needs it.

1. What is the full form of RAM?

* Rando, access memory

##### Assignment Level Intermediate

1. What are the types of ram?

* Although all RAM basically serves the same purpose, there are a few different types commonly in use today: Static RAM (SRAM) Dynamic RAM (DRAM) Synchronous Dynamic RAM (SDRAM)

1. Do a practical to identify RAM.

* Done

##### Assignment Level Advance

* 1. Do a Practical to identify ram and install it in a proper system.
* Done

#### Topic: Device and cable

##### Assignment Level Basic

1. What are the types of devices?

* Hardware devices can be classified into four distinct categories:

1. Input devices: For raw data input.
2. Processing devices: To process raw data instructions into information.
3. Output devices: To disseminate data and information.
4. Storage devices: For data and information retention.
5. What are the types of cable?

* Here's an overview of the most common computer cable types you'll encounter when dealing with computers.
  + - 1. VGA Cable. Also known as D-sub cable, analog video cable.
      2. DVI Cable. Connect one end to: computer monitor.
      3. PS/2 Cable.
      4. Ethernet Cable.
      5. 3.5mm Audio Cable.
      6. USB Cable.
      7. Computer Power Cord (Kettle Plug)

##### Assignment Level Intermediate

1. What cables are used to connect printer?

* Wiring a PC to a printer can be done through the following connections: serial, parallel (IEEE 1284 and SCSI), USB, Firewire (IEEE 1394) and Ethernet. PS/2, HDMI, and SATA connections are used for other purposes.

1. What was the first cable founded by Apple for data transfer?

* Over the last fifteen years, Apple has created four charging cables for their iPods, iPhones and iPads. They first used a 6-Pin FireWire connector on the original iPod, then the 30-pin dock connector to FireWire, followed by the 30-pin dock connector to USB and finally the newest 8-pin Lightning connector.

##### Assignment Level Advance

1. Do a practical to identify the sata cables.

* Done

1. Do a practical to identify and install the cables in the system.

* Done

#### Topic: Expansion card and slots

##### Assignment Level Basic

1. Why expansion card needed?

* The primary purpose of an expansion card is to provide or expand on features not offered by the motherboard. For example, the original IBM PC did not have on-board graphics or hard drive capability.

1. Why expansion slots needed?

* An expansion slot is a socket on the motherboard that is used to insert an expansion card (or circuit board), which provides additional features to a computer such as video, sound, advanced graphics, Ethernet or memory.

##### Assignment Level Intermediate

1. What are the types of expansion card?

* Types of expansion cards in a computer

1. Interface card (ATA, Bluetooth, EIDE, FireWire, IDE, parallel, RAID, SCSI, serial, and USB).
2. .MIDI.
3. Modem.
4. MPEG decoder.
5. Network card.
6. Sound card.
7. Tuner card.
8. Video capture card.
9. What are the types of expansion cards?

##### Assignment Level Advance

1. Do a practical to identify the types of expansion slots

* Done

1. Do a practical to install the Graphics card.

* Done

1. Do a practical to install LAN card

* Done

#### Topic: I/O Ports

##### Assignment Level Intermediate

1. What is I/O ports?

* Input/Output port An I/O port is a socket on a computer that a cable is plugged into. The port connects the CPU to a peripheral device via a hardware interface or to the network via a network interface.

1. List out the I/O ports available

* List of i/o ports is as follow

1. COM/Serial port
2. Parallel ports
3. USB port /connectors
4. PS/2 port
5. IDE drive connector
6. Do a practical to identify the I/O ports.

* Done

##### Assignment Level Intermediate

1. What is I/O ports?

* Input/Output port An I/O port is a socket on a computer that a cable is plugged into. The port connects the CPU to a peripheral device via a hardware interface or to the network via a network interface.

1. List out the I/O ports available

* List of i/o ports is as follow

1. COM/Serial port

2. Parallel ports

3. USB port /connectors

4. PS/2 port

5. IDE drive connector

1. Do a practical to identify the I/O ports.

* Done

#### Topic: BIOS & CMOS

##### Assignment Level Basic

1. What is BIOS?

* BIOS (basic input/output system) is the program a computer's microprocessor uses to start the computer system after it is powered on.

1. What is CMOS?

* CMOS is a type of memory technology, but most people use the term to refer to the chip that stores variable data for startup.

##### Assignment Level Intermediate

1. What is the role of BIOS in i/o?

* BIOS (basic input/output system) is the program a computer's microprocessor uses to start the computer system after it is powered on. It also manages data flow between the computer's operating system (OS) and attached devices, such as the hard disk, video adapter, keyboard, mouse and printer.

1. What is the role of i/o in CMOS?

* CMOS (short for complementary metal-oxide-semiconductor) is the term usually used to describe the small amount of memory on a computer motherboard that stores the BIOS settings.

##### Assignment Level Advance

1. Do a practical to reset BIOS

* Done

1. Do a practical to remove cmos.

* Done

#### Topic: Laptop & storage

##### Assignment Level Basic

1. What is laptop?

* Laptops are also known as notebook computers or simply notebooks. A laptop generally runs on a single main battery and is capable of doing the same tasks as a desktop computer can.

1. Why laptop is used widely now a days?

* Laptops, because of their easy access and mobility are the most convenient computers to use today; you can do basically almost anything with a laptop that you can do with a desktop computer. Since laptops are more flexible, mobile, and almost as powerful as desktops, laptops outsell desktops in the market.

##### Assignment Level Intermediate

1. Describe the working process of laptop?

* Laptops combine all the input/output components and capabilities of a desktop computer, including the display screen, small speakers, a keyboard, data storage device, sometimes an optical disc drive, pointing devices (such as a touch pad or pointing stick), with an operating system, a processor and memory into a single unit.

1. What is storage?

* Storage (either a hard drive or a solid state drive) stores data long-term for permanent access. It's the component that accesses and stores your files, applications, and operating system. The storage drive is non-volatile, which means the data is stored even if you turn off the computer.

1. List out the types of storage.

* External storage devices

1. External HDDs and SSDs.
2. Flash memory devices.
3. Optical Storage Devices.
4. Floppy Disks.
5. Primary Storage: Random Access Memory (RAM) .
6. Secondary Storage: Hard Disk Drives (HDD) & Solid-State Drives (SSD) .
7. Hard Disk Drives (HDD) .
8. Solid-State Drives (SSD).

##### Assignment Level Advance

1. Do a practical to identify types of storage.

* Done

1. Do a practical to disassemble and assemble the storage.

* Done

1. Do a practical to install the storage devices.

* Done

#### Topic: Printer

##### Assignment Level Basic

1. What is printer?

* A printer is a device that accepts text and graphic output from a computer and transfers the information to paper, usually to standard-size, 8.5" by 11" sheets of paper. Printers vary in size, speed, sophistication and cost.

1. Why is printer needed?

* Here are a few reasons why we still need printers in our home and office… People simply find it easier and more convenient to print off a report, grab a pen and make notes and changes, highlight passages and underline important phrases.

##### Assignment Level Intermediate

1. Describe the working process of printer.

* In short, printers work by converting digital images and text into physical copies. They do this using a driver or specialised software that has been designed to convert the file into a language that the printer can understand. The image or text is then recreated on to the page using a series of miniscule dots.

1. What are the types of printer.

* Inkjet Printers. For home printing tasks, an inkjet printer is a gold standard.
* Laser Printers.
* All-In-One Printers.
* Dot Matrix Printers.
* Supertank Printers.

##### Assignment Level Advance

1. Do a practical to install the printer

* Done

1. Do a practical to Troubleshoot the improper printing.

* Done

#### Topic: Storage devices

##### Assignment Level Basic

1. What is storage device?

* Storage (either a hard drive or a solid state drive) stores data long-term for permanent access. It's the component that accesses and stores your files, applications, and operating system. The storage drive is non-volatile, which means the data is stored even if you turn off the computer.

1. Why we need storage device

* One purpose of storage devices is to back up or archive your important data. In the business world, there is a need to store data permanently and in a way that does not get destroyed, corrupted or damaged easily. Different types of storage media can be used for backing up or archiving.

##### Assignment Level Intermediate

1. List out the types of storage devices. Repeat
2. Describe the working process of storage devices.

* Binary data is primarily stored on the hard disk drive (HDD). The device is made up of a spinning disk (or disks) with magnetic coatings and heads that can both read and write information in the form of magnetic patterns. In addition to hard disk drives, floppy disks and tapes also store data magnetically.

##### Assignment Level Advance

* 1. Do a practical to Remove storage devices and reinstall it and make a gpt disk.
* Done

#### Topic: ATA

##### Assignment Level Intermediate

* 1. What is ATA?
* Advanced Technology Attachment (ATA) is a standard physical interface for connecting storage devices within a computer. ATA allows hard disks and CD-ROMs to be internally connected to the motherboard and perform basic input/output functions.

##### Assignment Level intermediate:

* 1. Describe working of ATA.
* The ATA interface standard was designed to connect supported, integrated and portable storage devices without the need for an external controller. The ATA interface is basically a set of thin wires merged within a cable bus that are used to transfer data in and out of the disk drives. Initially, ATA supported parallel communication and was also called Parallel ATA (PATA). It consisted of a 40-pin controller cable and data transfer speed of 16-32 bits at a time.

##### Assignment level Advanced:

* 1. Do a practical to identify and install ATA cables.
* Done

#### Topic: SATA

##### Assignment Level Basic

1.What is SATA?

* Serial ATA (Serial Advanced Technology Attachment or SATA) is a command and transport protocol that defines how data is transferred between a computer's motherboard and mass storage devices, such as hard disk drives (HDDs), optical drives and solid-state drives (SSDs).

##### Assignment Level Advance

1. Describe the working of SATA.

* As its name suggests, a Serial ATA drive transfers data in serial fashion. Data is moved one bit at a time between a SATA drive and its host, using a seven-pin data cable and 15-pin power cable. The SATA cable results in a higher signaling rate, which corresponds to faster throughput of data.

1. Do a practical to identify sata.

* Done

1. Do a practical to install SATA.

* Done

1. Where does SATA is used.

* It is used in laptops and other portable computing devices. The mSATA spec maps SATA signals to an internally mounted PCIe card in a computer's motherboard, using an mSATA connector. MSATA drives are designed without an outer shell to fit inside small host devices.

#### Topic: SCSI

##### Assignment Basic

1. What is SCSI?

* Small Computer System Interface is a set of standards for physically connecting and transferring data between computers and peripheral devices.

1. Why SCSI needed?

* SCSI is used to increase performance, deliver faster data transfer transmission and provide larger expansion for devices such as CD-ROM drives, scanners, DVD drives and CD writers.

##### Assignment level Intermediate:

1. What is the rpm of SCSI?

* SCSI drives come in 10,000 or 15,000 rotations per minute (RPM) versions, meaning it will access data much faster than your desktop will (desktop drives are generally 5400 or 7200 RPM).

1. Do a Practical to install scsi.

* Done

#### Topic: Laptop

##### Assignment Level Basic:

1. What is laptop?

* Laptops are also known as notebook computers or simply notebooks. A laptop generally runs on a single main battery and is capable of doing the same tasks as a desktop computer can.

1. What are the types of laptop?

* Notebook (aka laptop) The general term for a full-sized laptop that strikes a balance between portability and functionality.
* Ultraportable.
* Ultrabook.
* Chromebook.
* MacBook.
* Convertible (2-in-1)
* Tablet as a laptop.
* Netbook.

1. Diffrent names of laptop.

* laptop computer
* laptop.
* microcomputer.
* minicomputer.
* notebook computer.
* palmtop.

##### Assignment level Intermediate:

1. What are the parts of laptop?

* The parts of laptop include display screen, keyboard, base panel, top panel, Cooling Fan, RAM, hard disk, palm rest assembly, battery, hinges, speaker, optical drive, antenna etc. Introduction: As we know laptop is most common computing device used around the world due to its portable nature.

1. Do a practical of identifying parts of the laptop.

* Done

##### Assignment level Advance.

1. Do a practical to disassemble the laptop.

* Done

1. Do a practical to change the RAM in the laptop.

* Done

#### TOPIC: PRINTER

##### ASSIGNMENT LEVEL BASIC:

1. WHAT IS PRINTER?

* A printer is a device that accepts text and graphic output from a computer and transfers the information to paper, usually to standard-size, 8.5" by 11" sheets of paper. Printers vary in size, speed, sophistication and cost.

1. IS IT A INPUT DEVICE OR OUTPUT DEVICE?

Printer is an output device, which is used to print information on paper.

##### Assignment level intermediate:

1. Describe the types of printer.

* Inkjet Printers. For home printing tasks, an inkjet printer is a gold standard.
* Laser Printers.
* All-In-One Printers.
* Dot Matrix Printers.
* Supertank Printers.

1. Describe inkjet printer.

* Inkjet printing is a type of computer printing that recreates a digital image by propelling droplets of ink onto paper and plastic substrates. Inkjet printers were the most commonly used type of printer in 2008, and range from small inexpensive consumer models to expensive professional machines.

##### Assignment level Advanced:

1. Do a practical of network installation of the printer.

* Done

1. do a practical to troubleshoot the printer of no cartridge error

* Done

#### Module 2 {Installation and Maintenance of Hardware and Its components}

**Topic: User Management**

##### Assignment Level Basic

1. What is user management?

* User management (UM) is defined as the effective management of users and their accounts, giving them access to various IT resources like devices, applications, systems, networks, SaaS services, storage systems, and more.

1. Why is user management needed?

* User management enables admins to control user access and on-board and off-board users to and from IT resources. Subsequently a directory service will then authenticate, authorize, and audit user access to IT resources based on what the IT admin had dictated.

##### Assignment level intermediate:

1. Where can we access the user management?

* User Access Management (UAM), also known as identity and access management (IAM), is the administration of giving individual users within a system access to the tools they need at the right time. For businesses, this usually includes access to external applications, permissions, and security requirements.

1. What are the features of user management?

* User Management

1. Overview of the User Management Module.
2. WebLogic Integration Users, Groups, and Roles.
3. Security Provider Requirements for User Management.
4. Listing and Locating Users.
5. Adding a User.
6. Viewing and Changing User Properties.

##### Assignment level Advance:

1. Do a practical to create a user from user management.

* Done

1. Do a practical to change the password of the administrator from the user management tool.

* Done

#### Topic: File and Folder Permission

##### Assignment Level Basic:

1. What is file folder permission?

* When you set permissions, you specify what users are allowed to do within that folder, such as save and delete files or create a new folder. You are not limited to choosing one of the standard permissions settings (Full Control, Modify, Read & Execute, List Folder Contents, Read, or Write).

1. What is the use of file and folder permission?

* File Permissions. File permissions control what user is permitted to perform which actions on a file. File permissions form a crucial part of a resistance strategy. On public systems, only part of the system is public.

##### Assignment level Intermediate:

1. wirte down the steps to give a folder read only permission.

* Steps to set folder at read only mode.

1. Open the folder's property menu.
2. Select read-only.
3. Copy as path.
4. Open your command prompt.
5. Change folder attributes via command line.
6. Remember your settings.
7. Communicate with other users.
8. Don't change system folders or files.
9. Write a step to give a file only admin permission.

* Setting Permissions

1. Access the Properties dialog box.
2. Select the Security tab. ...
3. Click Edit.
4. In the Group or user name section, select the (Admin) you wish to set permissions for.
5. In the Permissions section, use the checkboxes to select the appropriate permission level.
6. Click Apply.
7. Click Okay.

##### Assignment level Advance:

1. Do a practical to give the folder permission of read only in network.

* Done

1. Do a practical to change the ownership of the folder and the sub folders in it.

* Done

#### Topic: Install OS

##### Assignment Level Basic

1. What is OS?

* An operating system (OS) is the program that, after being initially loaded into the computer by a boot program, manages all of the other application programs in a computer. The application programs make use of the operating system by making requests for services through a defined application program interface (API).

1. What are the types of OS?

* Types of os

1. Batch operating systems. The batch operating system does not have a direct link with the computer.
2. Time-sharing or multitasking operating systems.
3. Distributed operating systems.
4. Network operating systems.
5. Real-time operating systems.
6. Mobile operating systems.
7. Microsoft Windows.
8. Apple iOS.

##### Assignment Level Intermediate

1. Do a practical to create bootable pendrive for kali Linux?

* Done

1. Do a practical to create a bootable pendrive for windows 7?

* Done

1. Do practical for creating a pendrive for mac os Mojave with unibeast.?

* Done

##### Assignment level Advance:

1. Do a practical to install Kali Linux

* Done

1. Do a practical to install windows 10

* Done

1. Do a practical to install Mac os X

* Done

#### Topic: Clean Install

##### Assignment Level Basic

* 1. What is clean install?
* 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. The terms are often heard in reference to operating systems (OSes) and software applications.

##### Assignment Level Intermediate

1. What is the process for clean install?

* The steps involved in performing a clean install for Windows 10 by this method include: Navigate to Settings from the start menu. Click on Updates & Security and navigate to Recovery from the left menu. Under More recovery options, click on Learn how to start fresh with a clean installation of Windows.

1. what are the benefits of clean install?

* Benefits are as follow

1. Fixes most performance-related problems.
2. Clears spyware and registry file.
3. Faster startup due to lack of startup programs and applications.

##### Assignment level Advance:

1. Do a clean installation of windows XP

* Done

1. Do a clean installation of windows 8

* Done

#### Topic: Upgrade installation

##### Assignment level basic

1. What is upgrade installation?

* What is an in-place upgrade install? An in-place upgrade install involves using the Windows OS installer to replace all the operating system files for Windows 10 on a PC. Basically, you're using the setup.exe program to reinstall the same OS back over itself.

1. What is the benefit of upgrade installation?

* Latest Security Patch. New software tackles/prevents the latest security vulnerabilities of operation.
* Improve Stability. ...
* Being trustworthy. ...
* Well Structured. ...
* Enjoy new features. ...
* Benefits of pricing. ...
* Keep hardware healthy. ...
* Enhanced user interface.

##### Assignment level intermediate:

1.Write down the steps of upgrade installation.

* How do I run Windows Updates?
* Go to the start button.
* Search for the application called Software Center.
* Click on the Updates tab.
* Install the updates using the Install All button or click on each one individually and install them separately.

##### Assignment level advance.

* 1. Do a practical to upgrade from windows 8 to windows 10.
* Done

#### Topic: Partition & Formatting

##### Assignment level Basic

1. What is partitioning?

* Partitioning allows the use of different filesystems to be installed for different kinds of files. Separating user data from system data can prevent the system partition from becoming full and rendering the system unusable. Partitioning can also make backing up easier.

1. What is partition?

* A partition is a logical division of a hard disk that is treated as a separate unit by operating systems (OSes) and file systems. The OSes and file systems can manage information on each partition as if it were a distinct hard drive.

1. What is format?

A format (noun, pronounced FOHR-mat) is a preestablished layout for data. A computer program accepts data as input in a certain format, processes it, and provides it as output in the same or another format.

##### Assignment level Intermediate:

1. Do a Practical of mbr partition.

* Done

1. Do a Practical of gpt partition

* Done

##### Assignment level Advance:

1. Do a practical using cmd.

Done

1. covert a partition to gpt by cmd.

* Done

1. Format a partition using cmd.

* Done

#### Topic: Transferring Files

##### Assignment level Basic

1. What is transferring Files?

* File transfer refers to the exchange of data files between computer systems. According to Techopedia: “File transfer is the process of copying or moving a file from one computer to another over a network or internet connection.

1. What are the ways of transferring files?

5 Ways to Transfer Files From One Computer to Another

* Use an External Storage Media. Obviously, this is the way most people do it.
* Share Over LAN or Wi-Fi.
* Use a Transfer Cable.
* Connect the HDD or SSD Manually.
* Use Cloud Storage or Web Transfers.

##### Assignment level Intermediate:

1. How do we transfer files from one system to another?

* Share Over LAN or Wi-Fi.
* Use a Transfer Cable.
* Connect the HDD or SSD Manually.
* Use Cloud Storage or Web Transfers.

1. Types of file transferring media.

* FTP. The original file transfer protocol, FTP, is a popular file transfer method that has been around for decades.
* FTPS.
* SFTP.
* SCP.
* HTTP & HTTPS.
* AS2, AS3, & AS4.

##### Assignment level Advanced:

1. Do a practical to transfer files from one system to another via network.

* Done

1. DO a practical to transfer data from one hard disk to another.

* Done

#### Topic: Administrative tools

##### Assignment Level Basic

1. What are administrative tools?

* Administrative Tools is a folder in the Windows 10 Control Panel. These folders contain tools for system administrators and advanced users.

1. What is the use of administrative tools?

* The programs can be used to schedule a test of your computer's memory, manage advanced aspects of users and groups, format hard drives, configure Windows services, change how the operating system starts, and much, much more.

##### Assignment level Intermediate:

1. List out the administrative tools.

* Tools
* Component Services.
* Computer Management.
* Defragment and Optimize Drives.
* Disk Cleanup.
* Event Viewer.
* iSCSI Initiator.
* Local Security Policy.
* ODBC Data Sources.

1. What is disk management tools.

* Disk management tools are utility software that is used to manage data on disk by performing various functions on it. Moreover, they perform functions like partitioning devices, manage drives, disk checking, disk formatting, etc.

##### Assignment Level Advanced

1. Do a practical to delete a driver and reinstall it from administrative tools.

* Done

1. Do a practical to delete a partition and again create it with administrative tool

* Done

1. Do a practical to create user with administrative tool.

* Done

#### Topic: Windows Feature.

##### Assignment Level Base

* 1. What is windows features?
* Microsoft Windows Features on Demand is a feature that allows system administrators to add or remove roles and features in Windows 8 and Windows Server 2012, and later versions of the client and server operating system to alter the file size of those operating systems.

##### Assignment level Intermediate

1. List out the windows features.

* Best Features of Windows Operating System
* Speed.
* Compatibility.
* Lower Hardware Requirements.
* Search and Organization.
* Safety and Security.
* Interface and Desktop.
* Taskbar/Start menu.

1. What is the use of IIS?

* Internet Information Services (IIS) is a flexible, general-purpose web server from Microsoft that runs on Windows systems to serve requested HTML pages or files. An IIS web server accepts requests from remote client computers and returns the appropriate response.

##### Assignment level Advance:

1. Do a practical to re install IIS with windows feature.

* Done

1. Do a practical to install dotnet framework 3.5 with Windows feature.

* Done

1. Do a practical to disable internet explorer in windows feature.

* Done

#### Topic: Backup & Restore

##### Assignment level Basic:

1. What is backup?

* Backup refers to the copying of physical or virtual files or databases to a secondary location for preservation in case of equipment failure or catastrophe. The process of backing up data is pivotal to a successful disaster recovery plan.

1. What is Restore?

* System Restore is a Microsoft® Windows® tool designed to protect and repair the computer software. System Restore takes a "snapshot" of the some system files and the Windows registry and saves them as Restore Points.

1. What is the need of backup

* Backup copies allow data to be restored from an earlier point in time to help the business recover from an unplanned event. Storing the copy of the data on separate medium is critical to protect against primary data loss or corruption.

##### Assignment level Intermediate.

1. What are the tools of backup?

* Acronis True Image 2020
* Cobian Backup

1. How do we restore?

* The goal of a restoration project may be to initiate or speed the recovery of an ecosystem after disturbance. Restoration activities may also be designed to reestablish natural disturbance regimes.

1. How to create a restore point?

* Create a system restore point
  + - 1. In the search box on the taskbar, type Create a restore point, and select it from the list of results.
      2. On the System Protection tab in System Properties, select Create.
      3. Type a description for the restore point, and then select Create > OK.

##### Assignment level Advance:

1. Do a practical to create restore point.

* Done

1. Do a practical to restore from restore point.

* Done

1. Do a practical to take backup from another system.

* Done

1. Do a practical to take backup backup with a recuva backup tool.

* Done

#### Topic: Disk Management

##### Assignment level Basic:

1. What is Disk management?

* Disk Management is a system utility in Windows that enables you to perform advanced storage tasks.

1. What is the use of disk management?

* Here are some of the things Disk Management is good for: To setup a new drive, see Initializing a new drive. To extend a volume into space that's not already part of a volume on the same drive, see Extend a basic volume.

1. What are the merits of Disk management tool?

* The tool lets users of Microsoft's desktop OS see and manage the disk drives installed on their devices. That includes hard disk drives, optical disk drives and flash drives, and it also allows for advanced storage tasks. It can be used to create, extend and delete drive partitions.

##### Assignment level Intermediate:

1. Where can we find the disk management tool?

* To start Disk Management:

1. Log on as administrator or as a member of the Administrators group.
2. Click Start -> Run -> type compmgmt. msc -> click OK. Alternatively, right-click on the My Computer icon and select 'Manage'.
3. In the console tree, click Disk Management. The Disk Management window appears.
4. List out the operations we can do with disk management tool

* Operation can be done on disk management are .

1. See information about your drives and partitions.
2. Create partitions on your drives.
3. Format partitions found on your drives.
4. Resize the partitions found on your drives.
5. Delete partitions from your drives.
6. Change the drive letters of your partitions.

##### Assignment level Advance:

1. Do a practical to create a new partition with disk management tool.

* Done

1. Do a practical to convert from MBR to gpt from disk management tool

* Done

1. Do a practical to create new partition from existing partition.

Done

#### Topic: Device Management

##### Assignment level Basic:

1. What is Device Management?

* Device management is the process of managing the implementation, operation and maintenance of a physical and/or virtual device.

1. What is the need of device management?

* It is a broad term that includes various administrative tools and processes for the maintenance and upkeep of a computing, network, mobile and/or virtual device.

1. What are the benefits of Device management?

* Benefits of Device Manager
* Helps manage all hardware devices installed on a system; this includes keyboards, hard disk drives, US devices, etc. Helps change hardware configuration options, manage drivers, enable or disable hardware, identify conflicts between hardware devices, etc.

##### Assignment level Intermediate:

1. Where can we access device management?

* How to access the Device Manager (Windows 10)
* Click the. (Start) button.
* In the Start Menu, click Settings.
* In the SETTINGS window, click Devices.
* In the DEVICES screen, click Printers & scanners or Connected devices, and under the Related Settings category, click Device manager.

1. List out the devices connected to the device management.

* Device like below connect with device management.

1. Ports
2. Bluetooth
3. Camera
4. Monitor
5. Audio
6. Network

##### Assignment level Advance:

1. Do a practical to add a device with device management tool.

* Done

1. Do a practical to delete a driver from the device management tool.

* Done

#### Topic: Physical security

##### Assignment Level Basic

1. Why physical security needed?

* Physical security's main objective is to protect the assets and facilities of the organization. So the foremost responsibility of physical security is to safeguard employees since they are an important asset to the company. Their safety is the first priority followed by securing the facilities.

1. what is physical security?

* Physical security is the protection of personnel, hardware, software, networks and data from physical actions and events that could cause serious loss or damage to an enterprise, agency or institution. This includes protection from fire, flood, natural disasters, burglary, theft, vandalism and terrorism.

##### Assignment Level Intermediate

1. list out the ways of physical security.

* #1: Lock up the server room.
* #2: Set up surveillance.
* #3: Make sure the most vulnerable devices are in that locked room. ...
* #4: Use rack mount servers.
* #5: Don't forget the workstations.
* #6: Keep intruders from opening the case.
* #7: Protect the portables.
* #8: Pack up the backups.

1. How to protect system from malfunctioning due to electrical fluctuation?

* #1: Verify electricity levels.
* #2: Confirm that supply circuits are grounded properly.
* #3: Don't overload circuits.
* #4: Use a UPS/surge protector.
* #5: Properly calculate UPS/surge protector capacity.
* #6: Replace damaged or faulty UPS/surge protectors.

#### Topic: Firewall settings

##### Assignment level basic:

1. What is firewall?

* A Firewall is a network security device that monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies. At its most basic, a firewall is essentially the barrier that sits between a private internal network and the public Internet.

1. Why is firewall needed?

* A firewall is a digital security system that checks all incoming and outgoing traffic in your network. It keeps out all unauthorized traffic and lets in only those communications that are deemed safe. Firewalls ensure a safe connection when connecting to the internet.

##### Assignment level Intermediate:

1. What are the features of firewall?

* Top Firewall Features
* #1. Unified Security Management. Organizations must cope with rapidly increasing network security complexity. ...
* #2. Threat Prevention. ...
* #3. Application and Identity-Based Inspection. ...
* #4. Hybrid Cloud Support. ...
* #5. Scalable Performance.

1. Describe types of firewall

* Five types of firewall include the following:
* packet filtering firewall.
* circuit-level gateway.
* application-level gateway (aka proxy firewall)
* stateful inspection firewall.
* next-generation firewall (NGFW)

##### Assignment level advance:

1. Do a practical to allow anydesk through firewall.

* Done

1. do a practical to turn off the services of firewall.

* Done

1. Do a practical to block ip messenger to access the network.

* Done



#### Module 3 [Network Configuration]

**Topic: Local area networking**

##### Assignment level Basic:

1. What is Network?

* A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications. The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.

1. What is Internet & Intranet?

* The Internet is a globally-connected network of computers that enables people to share information and communicate with each other.
* An intranet, on the other hand, is a local or restricted network that enables people to store, organize, and share information within an organization.

##### Assignment level Intermediate:

1. How many types of Network we used?

* We put together this handy reference guide to explain the types of networks in use today, and what they're used for.
* 11 Types of Networks in Use Today.
* Personal Area Network (PAN) ...
* Local Area Network (LAN) ...
* Wireless Local Area Network (WLAN) ...
* Campus Area Network (CAN) ...
* Metropolitan Area Network (MAN) ...
* Wide Area Network (WAN)

1. Different between LAN & PAN?

* Conceptually, the difference between a PAN and a wireless LAN is that the former tends to be centered around one person while the latter is a local area network (LAN) that is connected without wires and serving multiple users.

##### Assignment level advance:

1. Explain LAN?

* local area network (LAN) is a group of computers and peripheral devices that share a common communications line or wireless link to a server within a distinct geographic area. A local area network may serve as few as two or three users in a home office or thousands of users in a corporation's central office.

1. What are different types of LAN devices?

* Here is the common network device list:
* Hub.
* Switch.
* Router.
* Bridge.
* Gateway.
* Modem.
* Repeater.
* Access Point.

#### Topic: configured Network

##### Assignment Level Basic

1. What is configured network?

* relative arrangement of parts or elements: such as. (1) : shape. (2) : contour of land configuration of the mountains. (3) : functional arrangement a small business computer system in its simplest configuration.

1. How do we configure network?

* Open the Activities overview and start typing Settings.
* Click on Settings.
* If you plug in to the network with a cable, click Network. Otherwise click Wi-Fi.
* Make sure that your wireless card is turned on or a network cable is plugged in.
* Click the setting button.
* For a Wi-Fi connection, the setting button will be located next to the active network.
* Select the IPv4 or IPv6 tab and change the Method to Manual.
* Type in the IP Address and Gateway, as well as the appropriate Netmask.
* In the DNS section, switch the Automatic switch to off. Enter the IP address of a DNS server you want to use. Enter additional DNS server addresses using the + button.
* In the Routes section, switch the Automatic switch to off. Enter the Address, Netmask, Gateway and Metric for a route you want to use. Enter additional routes using the + button.
* Click Apply. If you are not connected to the network, open the system menu from the right side of the top bar and connect. Test the network settings by trying to visit a website or look at shared files on the network, for example.

##### Assignment level Intermediate.

1. How to check the ip address?

* First, click on your Start Menu and type cmd in the search box and press enter.
* A black and white window will open where you will type ipconfig /all and press enter.
* There is a space between the command ipconfig and the switch of /all.
* Your ip address will be the IPv4 address.

1. How to check the ip address through cmd?

* First, click on your Start Menu and type cmd in the search box and press enter.
* A black and white window will open where you will type ipconfig /all and press enter.
* There is a space between the command ipconfig and the switch of /all.
* Your ip address will be the IPv4 address.

1. How can we enter static address in network adapter?

* 1. Access the Control Panel
* 2. Select the Network Adapter
* 3. Select Properties
* 4. Select Internet Protocol Version 4 (TCP/IPv4)
* 5. Manually enter IP address and subnet mask
* 6. Save Settings
* 7. Revert Back to DHCP

##### Assignment Level Advanced

1. Do a practical to release the packets from the adapter.

* Done

1. Do a practiceal to renew the lease of the ip address.

* Done

1. Do a practical to check the connectivity to the google.

* Done

#### Topic: Wireless networking

##### Assignment level Basic:

1. [What is the difference between WEP and WPA?](https://www.proprofsdiscuss.com/q/1709494/what-is-the-difference-between-wep-and-wpa)

* WPA (Wi-Fi Protected Access) is a wireless security protocol released in 2003 to address the growing vulnerabilities of its predecessor, WEP. The WPA Wi-Fi protocol is more secure than WEP, because it uses a 256-bit key for encryption, which is a major upgrade from the 64-bit and 128-bit keys used by the WEP system.

1. What is Wireless Network?

* A wireless network refers to a computer network that makes use of Radio Frequency (RF) connections between nodes in the network. Wireless networks are a popular solution for homes, businesses, and telecommunications networks.

##### Assignment level Intermediate:

1. What is a wireless network connection?

* Wireless networks are computer networks that are not connected by cables of any kind. The use of a wireless network enables enterprises to avoid the costly process of introducing cables into buildings or as a connection between different equipment locations

1. What are the basic concepts of networking?

* Clients and servers—how services such as e-mail and web pages connect using networks.
* IP addresses—how devices on a network can be found.
* Network hubs, switches and cables—the hardware building blocks of any network.

##### Assignment level advance:

1. What do you need to know about networking?

* Below are several core concepts in computer networking that a networking professional would be required to know:
* LAN vs. WAN.
* Clients and servers.
* DNS lookup & IP addresses.
* Ethernet.
* Default gateway.
* Routers and switches.

1. How do you explain computer networking?

* Computer networking refers to interconnected computing devices that can exchange data and share resources with each other. These networked devices use a system of rules, called communications protocols, to transmit information over physical or wireless technologies.

#### Topic: THE Internet

##### Assignment level Basic:

1. What do you mean by the term URL?

* Just as buildings and houses have a street address, webpages also have unique addresses to help people locate them. On the Internet, these addresses are called URLs (Uniform Resource Locators).

1. Term which is used to see web pages is called what?

* Browser is a Computer program that enable the internet users to access, navigate, and search World Wide Web sites.

##### Assignment level Intermediate:

1. In the Ethernet which topology is used?

* The bus is the simplest (and the traditional) topology. Standard Ethernet (10BASE5) and Thin Ethernet (10BASE2), both based on coax cable systems, use the bus.

1. Set of rules and regulations while working on internet, which term is used?

* Protocol are the rules that we follow while on the internet.

##### Assignment level advance:

1. What do you mean by RAS?

* Reliability, Availability and Serviceability (RAS) is a set of related attributes that must be considered when designing, manufacturing, purchasing or using a computer product or component. The term was first used by IBM to define specifications for their mainframe s and originally applied only to hardware .

1. What are the main search engines to get more website URL on Internet?

* Main search engine are as follow
* Google
* Bing
* Baidu
* Yahoo
* Ask.com
* Duckduckgo.

1. What does the PROTOCOL consist of ?

* Protocol consist of
* Syntax
* Semantics
* timing



#### Topic: Virtualization

##### Assignment level Basic:

1. What is Virtualization

* Virtualization is the creation of a virtual -- rather than actual -- version of something, such as an operating system (OS), a server, a storage device or network resources. Virtualization uses software that simulates hardware functionality to create a virtual system.

1. What is the Difference between Full Virtualization and Para Virtualization?

* In Full virtualization, virtual machine permit the execution of the instructions with running of unmodified OS in an entire isolated way. In paravirtualization, virtual machine does not implement full isolation of OS but rather provides a different API which is utilized when OS is subjected to alteration.

##### Assignment level Intermediate:

1. What is Hyper-visor?

* A hypervisor, also known as a virtual machine monitor or VMM, is software that creates and runs virtual machines (VMs). A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing.

1. What are different hypervisors available in Linux?

* Linux KVM. A KVM (kernel based virtual machine) is a GNU/Linux based project developed for x86 machines.
* Xen. The Xen Project is one of the leading open source virtualisation platforms, Microsoft Hyper-V, Xvisor, Oracle VirtualBox, VMware Workstation Player, Lguest , Linux Containers (LXC)/Docker.

1. What is Virtualization and what are its types?

* Types of Virtualization
* Desktop Virtualization, Application Virtualization, Server Virtualization, Network Virtualization, Storage Virtualization.

##### Assignment level advance:

* 1. Name the components that are used in VMware infrastructure What is benefits of Virtualization?
* Benefits of Virtualization
* Reduced capital and operating costs.
* Minimized or eliminated downtime.
* Increased IT productivity, efficiency, agility and responsiveness.
* Faster provisioning of applications and resources.

#### Module 4: Troubleshooting and Helpdesk Topic: Troubleshoot security

##### Assignment level Basic:

1. What is troubleshooting?

* Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and explain how to resolve the problem. The first step in the troubleshooting process is to describe the problem completely.

1. what is the need of troubleshooting security?

* Troubleshooting is needed to identify the symptoms. Determining the most likely cause is a process of elimination—eliminating potential causes of a problem. Finally, troubleshooting requires confirmation that the solution restores the product or process to its working state.

##### Assignment level Intermediate:

1. Do a practical to change the password.

* Done

1. Do a practical to change the user account password.

* Done

##### Assignment level advance:

1. How do you troubleshoot a computer?

* Tech Tips to Troubleshoot a Computer
* What's Wrong? Determine the who, what, and when of the issue you're experiencing.
* Consult Google for Problem
* Reboot the Computer with default
* Check Connections of Drivers and Configs
* Look for Program Updates was available or not
* Close Background Tasks going are as per work or not
* Clean Up Your Hard Drive.
* Run an Antivirus Program.

1. How to troubleshoot common computer problems?

* The troubleshooting process steps are as follows:
* Identify the problem.
* Establish a theory of probable cause.
* Test the theory to determine the cause.
* Establish a plan of action to resolve the problem and implement the solution.
* Verify full system functionality and, if applicable, implement preventive measures.

1. Your computer turns on, but still doesn’t work?

* If you hear your computer starting but don't see anything on your monitor, it could be an issue with your display. Make sure your monitor is plugged in, receiving power, and turned on. Then check that the cord connecting your PC and monitor is firmly attached, not damaged, and plugged into the correct input.

1. You get the blue screen of death?

* Here is how to do that:
* Right-click This PC.
* Go to Properties.
* On the left-hand side, click Advanced System Settings.
* Under Startup and Recovery, click Settings.
* Now, under System Failure, untick the checkbox that says Automatically restart.
* Click Ok to save and continue.

#### Topic: OS Troubleshooting

##### Assignment level Basic:

1. What are the basic of troubleshooting?

* Tips for Troubleshooting Software
* Free up RAM by closing other open programs.
* Restart the software.
* Shut down and restart your computer.
* Use the Internet to find help.
* Undo any recent hardware or software changes.
* Uninstall the software, then reinstall it.
* Look for software patches.
* Scan for viruses and malware.

1. Write down the steps of os troubleshooting.

* Prepare.
* Make damage control plan.
* Get a complete and accurate symptom description.
* Reproduce the symptom.
* Do the appropriate corrective maintenance.
* Narrow it down to the root cause.
* Repair or replace the defective component.
* Test.

##### Assignments level Advance:

1. Do a practical to repair OS.

* Done

1. Do a practical to repair boot file.

* Done

1. DO a practical to repair bootmgr.

* Done

##### Topic: Recovery Assignment level Basic:

1. What is recovery?

* Data recovery is the process of restoring data that has been lost, accidentally deleted, corrupted or made inaccessible. In enterprise IT, data recovery typically refers to the restoration of data to a desktop, laptop, server or external storage system from a backup.

1. Why do we need recovery?

* The purpose of the backup is to create a copy of data that can be recovered in the event of a primary data failure. Primary data failures can be the result of hardware or software failure, data corruption, or a human-caused event, such as a malicious attack (virus or malware), or accidental deletion of data.

##### Assignment level Intermediate:

1. list out the tools for recovery.

* Some of the tools are.
* FonePaw Data Recovery.
* Stellar data recovery.
* Disk Drill.
* Tenorshare 4DDiG Data Recovery.
* TestDisk.
* Ultimate Boot CD.
* UndeleteMyFiles Pro.
* Glary Undelete.

1. DO a practical to recover deleted file.

* Done

1. Do a practical to recover the formatted file?

* Done

1. Do practical to recover data from the os Corrupted file.

* Done

#### Topic: Hard Drive troubleshooting

##### Assignment level Basic:

1. What is Hard troubleshooting?

* If you cannot access the hard disk drive, and its configuration settings are correct, you must troubleshoot the hardware components associated with the hard disk drive. These components include the drive, its signal cable, and the Hard Disk Controller (HDC) on the system board.

1. Why do we need Hard drive troubleshooting.

* To solve those Problems that occur when you have just installed a hard drive are almost always a simple matter of a bad or incorrectly connected cable, incorrect jumper settings, or some similar trivial problem. If a newly installed drive isn't recognized by the system, turn off the system.

##### Assignment level Intermediate:

1. Do a practical to troubleshoot the digging sound.

* Done

1. Do a practical to change the sata cable in harddrive.

* Done

#### Topic: Laptop, Printer, Video card Troubleshooting

##### Assignments level Baic

1. What is the basic troubleshooting for printer?

* Troubleshooting offline printer problems in Windows
* Check to make sure the printer is turned on and connected to the same Wi-Fi network as your device.
* Unplug and restart your printer.
* Set your printer as the default printer.
* Clear the print queue.
* Reset the service that manages the printing queue.

1. What are the basic troubleshooting for laptop?

* Here we have given some simple solutions to five common laptop issues.
* Overheating. Overheating can rob your laptop performance and often causes system crashes and freezing.
* Battery Dying Quickly.
* Bad Keyboard.
* System Crash.
* Viruses or Malware.
* Assignments level Intermediate:

1. Do a practical to disassemble the laptop and change the corrupted ram.

* Done

1. Do a practical to change the cartridge of the printer.

* Done

1. Do a practical to change the processor fan.

* Done

1. Do a practical to check the laptop which is not starting up

* Done

## N+ Assignment

#### Module 5. Network Fundamentals and Building Networks

##### Beginner Question

1. What is network?

* A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications. The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.

1. List Common Network Components.

* List of common network components are as follow
* Server
* Clients
* Channels
* Interface device
* Operating system.

1. Add and configure loopback adaptor in network and sharing center

* Adding loopback adapter on a computer with windows 7 operating system.

1. Start the Add Hardware wizard:
2. From the Start menu, select Run....

The Run dialog box is displayed.

1. For Open, enter hdwwiz.exe, then click OK.

The Add Hardware wizard is displayed:

1. Use the Add Hardware wizard to add a Microsoft Loopback Adapter:
2. On the introduction page, click Next.
3. Select Install the hardware that I manually select from a list (Advanced), then click Next.
4. Select Network adapters, then click Next.
5. Under Manufacturer, select Microsoft.
6. Under Network Adapter, select Microsoft Loopback Adapter.
7. Click Next.

The wizard displays the hardware you selected to install.

1. Click Next.
2. When the wizard completes the installation, click Finish.

* Example of configuring a network loopback adapter on a computer running the Windows 7 operating system

1. Open the Network and Sharing Center.
2. Click Change adapter settings.
3. Right-click the local area connection for the Microsoft Loopback Adapter, and then select Properties.
4. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties.

The Internet Protocol Version 4 (TCP/IPv4) dialog box is displayed.

1. In the General tab, select Use the following IP address: and enter the IP address and subnet mask:
2. For IP address, enter 10.1.1.9
3. For Subnet mask, enter 255.255.255.0
4. Click OK to close the Internet Protocol Version 4 (TCP/IPv4) dialog box.
5. Click Close to close the properties dialog box for the loopback adapter.
6. Close the Network Connections window

##### Intermediate Question

1. Explain application of network?

* Computer networks support an enormous number of applications and services such as access to the World Wide Web, digital video, digital audio, shared use of application and storage servers, printers, and fax machines, and use of email and instant messaging applications as well as many others.

1. What do you mean by Node?

* A network node can be defined as the connection point among network devices such as routers, printers, or switches that can receive and send data from one endpoint to the other.

1. practice of simple file folder sharing?

* Done

##### Advance Question

1. List types of devices

* Types of network devices are

1. Hub
2. Switch
3. Router
4. Bridge
5. Gateway
6. Madem
7. Repeater
8. Access point
9. Explain types of router?

* There are five types of router in thec market according to the application category. They are wired router,wireless network,core router, edge router and vpn router

#### Topic: Types of Network

##### Beginner Question

1. What is Difference between a LAN, MAN, WAN?

* The main different between lan ,man, wan is as follow
* Lan is a local area nertwork that links the devices in specific location such as school,office,etc.
* Man is defines as metropolitian area network connect troughout the cities.
* Wan defines as wide area network connect 2 different cities or states over a large distence

1. Common Network Components

* Common network component are.
* Client
* Server
* Channel
* Interface devices
* Operating system
* Intermediate Question

1. Explain Wide Area Network

* A wide area network (WAN) is a geographically distributed private telecommunications network that interconnects multiple local area networks (LANs). A LAN is a group of computers and network devices which are all connected to each other, typically from within a short relative geographical distance.

1. Explain Network Backbone

* A backbone is the part of the computer network infrastructure that interconnects different networks and provides a path for exchange of data between these different networks. A backbone may interconnect different local area networks in offices, campuses or buildings.

1. Explain CAN

* A Controller Area Network (CAN) bus is a communication system made for vehicle intercommunication. This bus allows many microcontrollers and different types of devices to communicate with each other in real time and also without a host computer.
* Advance Question

1. Define Physical Network Topologies

* Physical topology refers to the interconnected structure of a local area network (LAN). The method employed to connect the physical devices on the network with the cables, and the type of cabling used, all constitute the physical topology.

1. Network Architecture: Peer-to-Peer

* Peer-to-peer architecture (P2P architecture) is a commonly used computer networking architecture in which each workstation, or node, has the same capabilities and responsibilities. It is often compared and contrasted to the classic client/server architecture, in which some computers are dedicated to serving others.

1. Point-to-multipoint network

* The point-to-multipoint topology consists of a central base station that supports several subscriber stations. These offer network access from a single location to multiple locations, permitting them to use the same network resources between them.

##### Beginner Question

1. Why we use Network and Devices

* Hardware devices that are used to connect computers, printers, fax machines and other electronic devices to a network are called network devices. These devices transfer data in a fast, secure and correct way over same or different networks.

1. Explain Switch?

* Hardware devices that are used to connect computers, printers, fax machines and other electronic devices to a network are called network devices. These devices transfer data in a fast, secure and correct way over same or different networks.

#### Topic: Network Devices

##### Intermediate Question

1. Define list of cables in use of network

* Mainly there are three types of ethernet cables used in LANs i.e., Coaxial cables, Twisted Pair cables, and Fiber optic cables.

1. Explain Define Access point

* An access point is a device that creates a wireless local area network, or WLAN, usually in an office or large building. An access point connects to a wired router, switch, or hub via an Ethernet cable, and projects a WiFi signal to a designated area.

1. Which types of transmission modes in computer network

* There are 3 types of transmission modes which are given below: Simplex mode, Half duplex mode, and Full-duplex mode.

1. Practice on Remote Desktop connection

* Done

1. Practice on remote assistance

* Done

##### Advance Question

1. Explain Repeater and router

* The router is being used to connect to the internet, whereas the repeater is used to replicate the router's received signals and the repeater amplifies.

1. What is multiplexer?

* A multiplexer (MUX) is a combinational logic circuit designed to switch one of several inputs to a single common output line. A multiplexer is Many to One data selector. A multiplexer selects one of the many data available at its input depending on the bits on the select line.

1. Explain MODEM

* modem, (from “modulator/demodulator”), any of a class of electronic devices that convert digital data signals into modulated analog signals suitable for transmission over analog telecommunications circuits.

1. Monitor "event viewer"

* From the Activity pane, drag a Monitor Event Log activity to the runbook. Double-click the Monitor Event Log activity icon to open the Properties dialog box. Configure the settings on the Details tab and on the Advanced tab.

#### Topic: Install and configure DHCP, DNS

##### Beginner Question

1. Explain DHCP Dynamic host configuration protocol

* Dynamic Host Configuration Protocol (DHCP) is a client/server protocol that automatically provides an Internet Protocol (IP) host with its IP address and other related configuration information such as the subnet mask and default gateway.

1. Application of DHCP with one example

* DHCP is an application-layer protocol that allows a client machine on the network, to get an IP address and other configuration parameters from the server. It gets information by exchanging packets between a daemon on the client and another on the server.

##### Intermediate Question

1. Explain Domain naming Services

* Domains, Websites, Email, Hosting, Security & More. Everything You Need To Succeed Online. Search for .com & Other TLDs At The World's #1 In Domain Names. Get Online Today! 24/7 Phone & Chat Support. Over 80m Domains Managed. Lowest Industry Prices.

1. Application of DNS with one example

* DNS, or the Domain Name System, translates human readable domain names (for example, www.amazon.com) to machine readable IP addresses (for example, 192.0.2.44).

#### Topic: Network Topologies

##### Beginner Question

1. What are the 5 network topologies?

* Geometric representation of how the computers are connected to each other is known as topology. There are eight types of topology – Mesh, Star, Bus, Ring, Hybrid, Tree, P2P and Daisy chain.

1. What is Internet topology?

* Internet topology is the structure by which hosts, routers or autonomous systems (ASes) are connected to each other. The majority of existing Internet topology research focuses on the AS-level.

1. What is protocol

* A protocol is a set of rules and guidelines for communicating data. Rules are defined for each step and process during communication between two or more computers. Networks have to follow these rules to successfully transmit data.

##### Intermediate Question

1. What is the most common network topology?

* Star topology is by far the most common. Within this framework, each node is independently connected to a central hub via a physical cable—thus creating a star-like shape. All data must travel through the central node before it reaches its destination.

1. Explain star topology in networking?

* Star topology is a network topology in which each network component is physically connected to a central node such as a router, hub or switch. In a star topology, the central hub acts like a server and the connecting nodes act like clients.

##### Advance Question

1. Explain Hybrid topology

* A hybrid topology is a type of network topology that uses two or more differing network topologies. These topologies can include a mix of bus topology, mesh topology, ring topology, star topology, and tree topology.

1. What is physical and logical topology?

* A logical topology is how devices appear connected to the user. A physical topology is how they are actually interconnected with wires and cables.

1. What are the types of logical topology?

* The two logical topologies are broadcast (also known as bus) and sequential (also known as ring). In a broadcast topology, all devices on the network receive every message transmitted.

#### Topic: OSI Model

##### Beginner Question

1. What is OSI model explain?

* The OSI model describes seven layers that computer systems use to communicate over a network. Learn about it and how it compares to TCP/IP model.

1. List of Application layer protocol

* Application layer contains several protocols namely Telnet, FTP, TFTP, SMTP, SNMP, DNS, and DHCP.
* Protocols of Application layer
* Telnet. Telnet is an application protocol.
* FTP. FTP stands for File Transfer Protocol.
* TFTP.
* SMTP.
* SNMP.
* DNS.
* DHCP.

1. How many types of protocols are there?

* There are three main types of network protocols. These include network management protocols, network communication protocols and network security protocols: Communication protocols include basic data communication tools like TCP/IP and HTTP.

##### Intermediate Question

1. What is the difference between TCP IP model and OSI model?

* TCP/IP Model is a communication protocols suite using which network devices can be connected to the Internet. On the other hand, the OSI Model is a conceptual framework using which the functioning of a network can be described.

1. What is TCP IP networking?

* TCP/IP stands for Transmission Control Protocol/Internet Protocol. TCP/IP is a set of standardized rules that allow computers to communicate on a network such as the internet.

1. What is a wired Internet connection?

* A wired Internet connection implies cable, DSL or FiOS, which is cabled from the user's premises to the service provider. With regard to connecting a device within the home or office, the term may refer to using Ethernet instead of Wi-Fi. Contrast with wireless Internet.

1. What are the disadvantages of wired networks?

* However, there are disadvantages to using a wired network: they are expensive to install or reconfigure. users can't instantly move a device from one location to another as there may not be a network connection available.

1. How do I configure network authentication?

* Click the Change connection settings box. Click on the Security Tab on the top of the window. Change the Choose a network authentication method to be Microsoft: Protected EAP (PEAP) and choose Settings. Uncheck the Automatically use my Windows logon name and password (and domain if any) box, and click OK.

1. Practice of Team viewer, Any Desk, Google Hangout, Skype, zoom

* Done

1. Download google chrome

* Done

1. configure "date and time" opting in control panel

* Done

#### Topic: TCP/IP

##### Assignment level Basic:

1. What is TCP/IP?

* TCP/IP stands for Transmission Control Protocol/Internet Protocol and is a suite of communication protocols used to interconnect network devices on the internet. TCP/IP is also used as a communications protocol in a private computer network (an intranet or extranet).

1. What is the full form of TCP/IP?

* TCP/IP stands for Transmission Control Protocol/Internet Protocol.

##### Assignment level Intermediate:

1. List out the types of IP

* There are four types of IP addresses:
* public,
* private,
* static,
* dynamic.

1. What is protocol?

* A network protocol is an established set of rules that determine how data is transmitted between different devices in the same network. Essentially, it allows connected devices to communicate with each other, regardless of any differences in their internal processes, structure or design.

1. DO a practical to set the tcp/ip in network adapter?

* Done

#### Topic: Cables

##### Beginner Question

1. Types of cables and connectors?

* Types of Cables. “Wireless” appears to be the goal in our connected society, yet some network cables are necessary to allow computers to transfer information.
* Voice and Data Cables.
* Coaxial Cables.
* Fiber Optic Cables.
* Types of Connectors.
* Ethernet Cable Connectors.
* Coaxial Cable Connectors.
* USB Connectors.

1. Explain twisted pair cable and shielded twisted pair cable

* Each signal on twisted pair requires both wires. Unlike unshielded twisted pair (UTP), shielded twisted pair also encloses these wires in a shield and grounds them to further reduce electromagnetic and radio frequency interference. STP cables are more expensive and harder to install than UTP wiring.

##### Intermediate Question

1. Which of these cables connect computers to monitors?

* The cable may be a VGA, S-Video, DVI, HDMI, DP (DisplayPort), or USB-C. VGA and DVI are older connections, whereas HDMI, DisplayPort, and especially USB-C are newer. Monitors with USB ports or card readers also have a USB cable that must be connected to the computer if you want to use these features.

1. How do I connect to a shared printer?

* Connect a shared printer using Settings
* Select the Start button, then select Settings > Devices > Printers & scanners.
* Under Add printers & scanners, select Add a printer or scanner.
* Choose the printer you want, and then select Add Device

1. Which cable that is commonly used to connect a computer to a printer?

* A USB cable connects your printer to your computer, so you have a direct connection every time you print. The majority of printers are compatible with a USB 2.0 A/B cable. The "A" side of the cable plugs into the USB port on your computer and the "B" side plugs into the back of the printer.

1. What are the different ports and connectors?

* The parallel port, serial port, and video port all use D type connectors (DB-25M, DB-9M, and DB-15F, respectively). These are called "D connectors" because of their shape, which permits the cables to be plugged in only one way. The audio jacks are the most confusing connectors on the back panel.

1. How do I connect my laptop to my printer without cable?
2. Application and brief explanation of fiber optic cable and Coaxial cable
3. Which of following operates at the 5GHz frequency range?
4. What frequency does 802.11g use?
5. What standard is compatible with 802.11a?

#### Topic: TCP/IP concepts - IPv6, IPv4

##### Beginner Question

1. 1.What is the difference between IPv4 & IPv6? 2.Explain TCP/IP
2. Explain IPV6 Address with Address structure
3. Define IPV6 reserve address
4. Explain Difference between public ip and private ip
5. Create straight and cross cables and it's testing

##### Intermediate Question

1. Brief explanation of ip Addresses
2. What is the advantage of IPv6 over IPv4?
3. Assign multiple IPv4 in single network adapter [lan card]
4. Assign simple IPv6 between two system and ping it.
5. Assign and configure simple IPv4 between systems

##### Advance Question

1. 1.Which is faster IPv4 or IPv6? 2.What does TCP do?
2. Give security in sharing
3. Configure "Map network drive"

#### Topic: IP routing and Routing protocols

##### Beginner Question

1. What Is Routing?
2. How Routing Starts Up?

##### Intermediate Question

1. What Is Hybrid Routing Protocol?
2. What Are the Range of Ad Values?
3. What Is an Autonomous System?

##### Advance Question

1. Define Static Routing?
2. Explain Dynamic Routing?

#### Topic: Switching and VLANS

##### Beginner Question

1. What is VLAN?
2. Which two benefits of creating VLANs?
3. What is Dynamic VLAN?
4. What is Static VLAN?

##### Intermediate Question

1. What is VLAN and INTERVLAN?
2. What is trunk port?

##### Advance Question

1. How to configure Trunk port?
2. How to delete VLAN information from Switch?

#### Module 6. Network security, Maintenance and Troubleshooting procedures

**Topic: A SOHO Networks**

##### Beginner Question

1. What is SOHO network?
2. What does SOHO mean networking?

##### Intermediate Question

1. How does a SOHO network work?
2. Issues with Soho Networking?

##### Advance Question

1. How Small is the “S” in SOHO?
2. SOHO Routers vs. Home Routers?

#### Topic: NAT & PAT

##### Beginner Question

1. What is NAT?
2. What is PAT?
3. Different between NAT & PAT?

##### Intermediate Question

1. However, Will Nat work?
2. Explain NAT?

##### Advance Question

1. What is different between Static & Dynamic NAT?
2. NAT stand for?
3. PAT stand for?

#### Topic: Authentication and Access Control

##### Beginner Question

1. What Is Acl?
2. What Are Different Types of Acl?

##### Intermediate Question

1. Explain Standard Access List?
2. Explain Extended Access List?

##### Advance Question

1. What Is Wildcard Mask?
2. In Which Directions We Can Apply an Access List?

#### Topic: WAN Technologies

##### Beginner Question

1. Fiber-optic communication
2. What is Leased Line
3. Explain Circuit switching

##### Intermediate Question

1. Explain Packet Switching
2. What is difference between leased line and broadband?
3. How much is a 100mb Leased Line?

##### Advance Question

1. Difference between a POTS line and a leased line?
2. What is the process of packet switching?
3. Difference between circuit switching and packet switching?
4. Practice on printer sharing
5. Use of IIS [ Via "add and remove" feature from control panel. "appwiz.cpl" command]

#### Topic: Communication technologies Cloud and Virtualization

##### Beginner Question

1. What is virtualization?
2. What are two types of virtualization in cloud?

##### Intermediate Question

1. What are the two types of virtualization?
2. What is VMware virtualization technology?

##### Advance Question

1. What is the difference between cloud and virtualization?
2. What are the benefits of implementing virtualization in cloud computing?

#### Topic: Monitoring Tools

##### Beginner Question

1. Why are network monitoring tools used?
2. Explain firewalls

##### Intermediate Question

1. Explain core switches
2. Explain client systems

##### Advance Question

1. What is network management?
2. Explain Event Viewer
3. Practice "parental control" or "family safety" option in control panel

#### Topic: Network Security, Network vulnerabilities

##### Beginner Question

1. What are network vulnerabilities?
2. What are the types of network security attacks?

##### Intermediate Question

1. What is virus in network security?
2. What is the difference between virus and antivirus?

##### Advance Question

1. Who is vulnerable in network security?
2. How do you assess vulnerability?
3. What are the principles of network security?
4. What is a firewall to use for?
5. configure advanced firewall setting?
6. configure "date and time" opti

# TERM-2 CCNA Assignment

#### Module 7 Network fundamentals

##### Advance Question

1. Explain Network Topologies
2. Explain TCP/IP Networking Model
3. Explain LAN and WAN Network
4. Explain Operation of Switch
5. Describe the purpose and functions of various network devices
6. Make list of the appropriate media, cables, ports, and connectors to connect switches to other
7. Define Network devices and hosts .
8. What are Ethernet Standard (802.3) and Frame Formats?

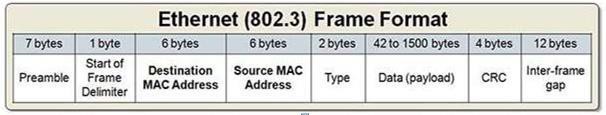


##### Intermediate Question

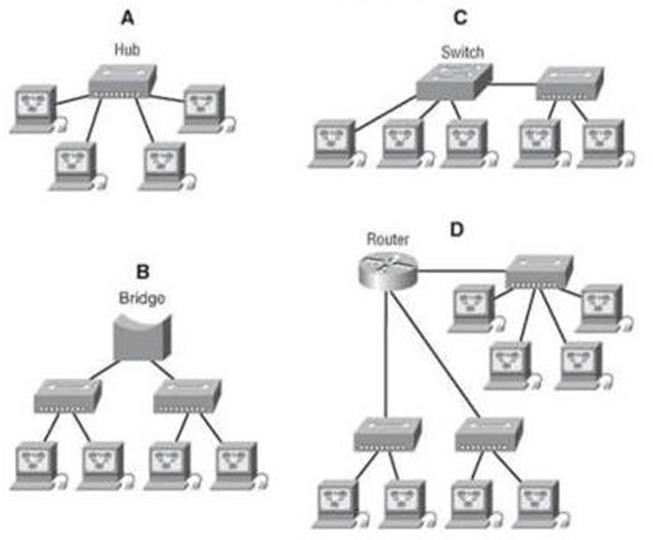
1. Comparison between UTP, MM and SM Ethernet Cabling
2. Make Cross cable
3. Make Straight-Through Cable
4. Differentiate between LAN/WAN operation and features
5. Explain ARP, ICMP and Domain name
6. Describe the components required for network and Internet communications
7. Explain Encapsulation and DE capsulation in OSI Reference model
8. Explain network segmentation and basic traffic management concepts
9. What is flow control and acknowledgment**?**

##### Advance question

1. Use the OSI and TCP/IP models and their associated protocols to explain how data Flows in a network
2. Identify and explain at layers 1, 2, 3, and 7 using a layered model approach
3. Explain CSMA/CD and CSMA/CA
4. Explain this frame and find layer
5. Draw and explain Cisco hierarchical model
6. Drawing of a typical wired and wireless enterprise LAN
7. Describe the uses of straight-through and crossover Ethernet cables



1. Explain Layer 2 and Layer 3 Switch
2. Identifying Collision and Broadcast Domains



1. Explain Spanning Tree Protocol
2. Explain uncast Multicast and Broadcast
3. Explain CAM (Content Addressable Memory)
4. Explain CAM (Ternary Content Addressable Memory)
5. Which command use of Show MAC TABLE?

#### Module 8 Network Access

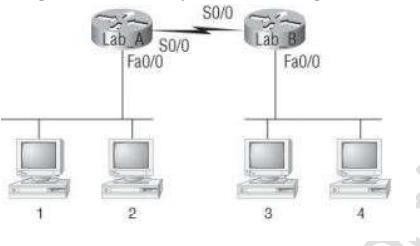
##### Beginner Question

1. Explain Switch
2. Explain Switch Boot Sequence
3. Explain Three Methods to access Switch Command Line Interface
4. Explain and Configuring the Cisco Internet Operating System
5. Explain Switch Port

C:\Users\Android\Desktop\switches-ws-c2960-24pc-l_front.jpg

1. Configure Basic Password Settings on a switch
2. Configure Line Password Settings on a switch
3. Configure Password Settings on a switch
4. Configure IPv4 on a switch 10.Verifying IPv4 on a switch 11.Explain Basic V LAN 12.Explain VTP
5. Explain CDP.
6. Identifying VLAN
7. Describe the basic operation of STP 16.Explain IPv4 subnetting.
8. What is subnet mask?
9. Explain binary decimal hexadecimal with example 19.Describe the Need for Public IPv4 and Private IP Addressing 20.Explain Subnet Prefix

21.Explain How to Connect Router with Switch 22.Explain Routing Basics with command 23.Configuration basic IP address in fig.



1. Create Static Routes
2. Verifying IP Routing 26.Explain EIGRP 27.Explain OSPF Basics 28.Explain OSPF Area 29.Explain DR/BR Selection 30.Explain OSPF

31.Explain Describe IPv6 addresses 32.What is 6to4 tunnel?

33.Explain Wireless Technology 34.Explain Basic Wireless Devices 35.Explain Wireless Security

36.Explain WPA or WPA2 Pre-Shared Key

##### Intermediate Question

1. Explain Logging into a Switch
2. Explain Switch User Mode, Enable (Privileged) Mode and Global Configuration Mode
3. Gathering Switch Basic information
4. Explain SSH
5. Configure SSH Setting On a Switch
6. Explain Telnet Setting
7. Verifying Switch Interface Status
8. Configure VLAN
9. Verifying VLAN 10.Configure VLAN Trucking

11.Give Reasons for Using VLANs 12.Static VLANs

13.Dynamic VLANs 14.Brief explain STP Timer

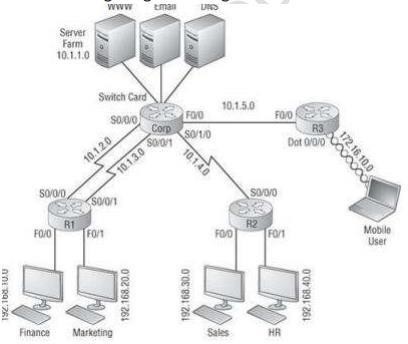
15.Explain how Switches Calculate Their Root Cost 16.Configure STP on Switch

1. Verifying STP on a Switch
2. What is Port Security how to find Port with command? 19.Classified Default subnet mask for Class A, B, C, D 20.Explain Classless Inter-Domain Routin

21.How to define subnetting address of class A, B, C, D 22.Explain Classless and Class full Addressing 23.Details of VLSM (variable length Subnet Mask 24.Explain Static Routing

25.Explain Default Routing 26.Configuring IP routing





27.Configure VLAN Routing 28.Routing Protocol Metric

29.Explain how OSPF calculates the cost for a route 30.Define Benefits and Uses of IPv6

31.Define this IPV6 Address 32.Explain IPv6 Routing Protocols

C:\Users\Android\Desktop\basic-IPv6-address.png

33.Explain Wireless Access Points 34.Define IEEE 802.11 Transmissions

35.Explain Independent Basic Service Set (Ad Hoc) 36.Explain How to Secure Wireless Network

##### Advance question

1. Setting administrative factions
2. Setting hostnames
3. Setting banners
4. Setting passwords
5. Viewing, saving, and erasing configurations
6. Configure an IP address on a switch
7. Configuring SSH
8. Configuring Telnet
9. Explain Layer 3 Switch
10. Describe Dynamic IP configuration with DHCP 11.Explain 802.1q Protocol

12.Explain the Switch Port Mode Command 13.Explain the Removing Command of VLAN 14.Describe Inter VLAN Routing

15.Explain Dynamic Routing 16.Explain routing loop

17.Configure and verify inter switch connectivity 18.Configure and Verify VLAN Trucking 19.Explain and configure PAGP

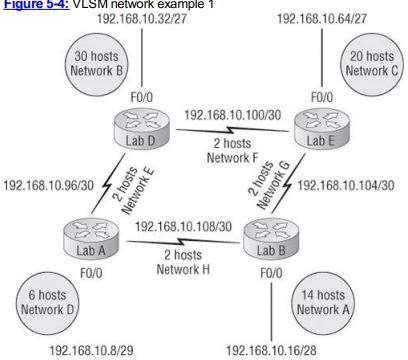
20.Configuring Ether Channel 21.Verifying Ether Channel 22.Explain PAGP and LACP

23.Configure and Verifying IPv4 Addressing and Subnetting 24.Explain the Network Address and Broadcast Address 25.Explain Classful Network

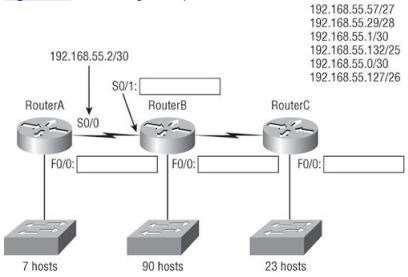
26.26. Practice Example #5B: 255.255.255.0 (/24)

27.27. Practice Example #2A: 255.255.240.0 (/20)

1. Given the no of hosts as 126, 50, 20 and 5 Find IP address and subnet mask using class (192.168.1.0)
2. Explain this Network



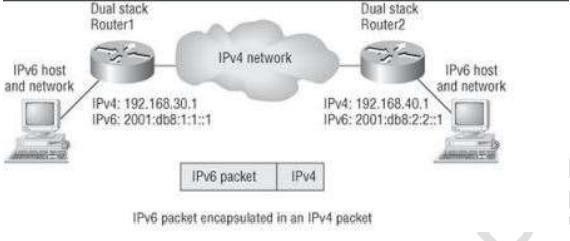
1. Put right addressing in fig.



1. Explain Routed and Routable Protocol 32.Explain IGP

33.Explain Distance Vector, link state and Hydride 34.Explain and Verifying OSPFv2

1. Explain Wildcard Mask
2. Explain Address Types and Special Addresses 37.Configuring Cisco Routers with IPv6 38.Explain RIPng, EIGRPv6, OSPFv3
3. Creating a 6to4 tunnel



1. Explain 802.11 Committees and subcommittees 41.Explain Wireless Topologies

#### Module 9 CCNA -IP connectivity and IP services

##### Beginner Question

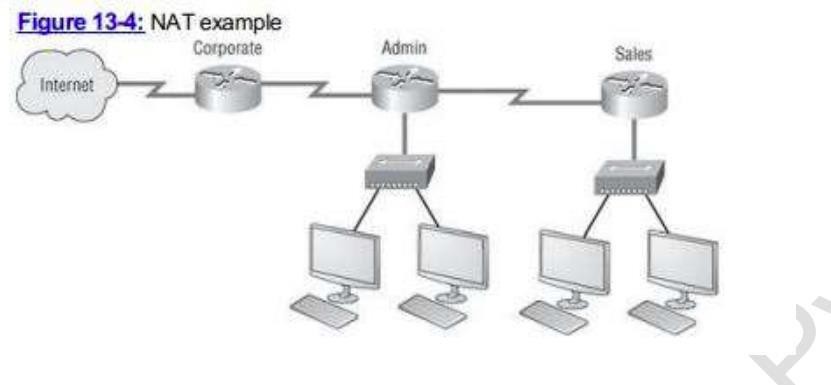
1. Explain Perimeter, Firewall, and Internal Routers
2. Explain types of Access Lists
3. Explain Basic Concept of DHCP
4. Explain DHCP DORA Process
5. Explain the basic operation of NAT
6. Explain disadvantages of using NAT

##### Intermediate Question

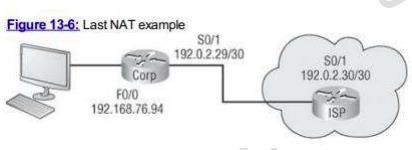
1. How to solved Mitigating Security Issues with ACLs
2. Explain Switch Port Security
3. Explain ACL with command
4. Explain DHCP Snooping and ARP Inspection
5. Explain DHCP Relay Agent
6. Types of Network Address Translation
7. Configuring Dynamic NAT

##### Advance question

1. Write basic command of Standard Access Lists
2. Explain Telnet/SSH
3. Explain How to Configure DHCP
4. NAT Explain with Command
5. Explain with Command



1. Explain with Command



#### Module 10 CCNA - Security threat landscape

##### Beginner Question

1. Explain Security Threat
2. What is mitigation Techniques?

##### Intermediate Question

1. Explain DoS Attacks
2. Explain DDoS
3. Explain IP spoofing

##### Advance Question

1. What is social Engineering Attack?
2. Explain Man-In-The Middle Attack

#### Module 11 CCNA -Automation and Programmability

##### Beginner Question

1. Explain How Automation Impacts Network Management
2. Compare Traditional network with Controller based networking
3. Explain Virtualization

##### Intermediate Question

* 1. Describe Characteristics of REST-based API

##### Advance Question

1. Explain methods of Automation
2. Explain SDN
3. Explain DNA Center
4. Explain SD-Access and SD-WAN

# TERM-3

**Microsoft server Assignment**

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

#### Install Windows Servers 2016

1. Windows Server 2016 installation requirements
2. Describe Windows Server 2016 editions
3. From which menu we can add and remove server roles?
4. What is workgroup?
5. What is domain?
6. What is powershell ?
7. up gradation v/s migration
8. license and activation model
9. Precaution of up gradation
10. Migration limitation
11. What is the advantages of server core
12. What is Nano server
13. Purpose of Nano server
14. Compare GUI v/s core v/s Nano server

##### Practical

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

#### Storage solution

1. compare GPT and MBR
2. different between VHD and VHDX
3. what is SMB and NFS
4. what is sharing permission
5. what is NTFS permission
6. what is resource ownership
7. what is storage pool
8. what is basic disk and dynamic disk
9. what is simple volume , spanned volume
10. describe RAID 0 , RAID 1 , RAID 5, RAID 6 , RAID 1 0
11. describe DAS, NAS and SAN
12. what is iscsi initiator and target?
13. what is data duplication?

##### Practical

1. share “data” a folder and give read / write permission to first user
2. share “data” folder and give read permission to another user
3. share a “data” folder create a file in that folder and remove inheritance permission and give different ntfs permission to different user
4. configure RAID 1 and check redundancy
5. configure RAID 5 and check redundancy
6. configure iscsi target and iscsi initiator and allocate remote storage
7. configure data deduplication

#### Implement Hyper-V

1. what is virtualization
2. type of virtualization and compare it
3. Describe hyper v
4. what is remote management of hyper v
5. what is hyper v manager
6. what is virtual machine and nested virtualization
7. what is dynamic memory
8. what is NUMA
9. describe Virtual Machine functions
10. describe Hyper v functions
11. what is check point
12. hyper v networking—virtual nic , hyper v switch
13. hyper v storage---vhd ,vhdx , fixed size, dynamic expanding

##### Practical

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

#### Windows containers

1. describe containers
2. what is docker?
3. hyper v containers and windows containers

##### Practical

1. install windows container
2. install container in core server
3. install container in nano server

#### High availability

1. hyper v live migration
2. what is high availibilty?
3. what is cluster, quorum and witness?
4. describe cluster storage
5. what is NLB?
6. importance of network in Failover and NLB
7. describe node in cluster and its operation

##### Practical

1. Install and configure failover cluster for hyper v
2. install and configure NLB for web server

#### Maintain and monitor server

1. need of updates
2. what is WSUSand importance of WSUS 3 WSUS architecture
3. 4synchronization of update, product and classification 5 wsus group
4. wsus port number and wsus policy
5. what is backup and restore 8 type of backup
6. difference between incremental and differential backup
7. what is full server backup
8. what is use of performance monitor

##### Practical

1. install and configure wsus server
2. apply update to particular client group through wsus
3. Take customize backup of data
4. restore backup original location and also another location
5. backup schedule and check it.
6. take full backup
7. performance monitor of current process
8. performance monitor of cpu, memory

### Module: 13 Networking with Windows Server

#### Installing and configure DNS server

1. Describe DNS operation
2. DNS query—Iterative and Recursive
3. what is forward lookup zone and its resource type
4. what is reverse lookup zone and its resource type
5. what is conditional forwarder
6. what is primary zone, secondary zone and stub zone
7. what is active directory integrated zone
8. primary server, secondary server, cache only server
9. what is aging and scavenging
10. what is MX record

##### Practical

1. install active directory integrated dns
2. create secondary dns and zone transfer
3. create “A” record
4. create alias
5. create reverse lookupzone
6. make a pointer
7. apply conditional forwareder betwwen two different domain
8. nslookup command

#### DHCP

1. purpose of DHCP
2. what is DORA process?
3. what is authorised DHCP server?
4. describe scope, lease duration, DHCP option, exclude address
5. what is reservation?
6. what is dhcp relay agent?
7. describe ipconfig commnad

##### Practical

1. install dhcp sever and make authorize
2. create a scope and check on client by ipconfig
3. dhcp database and take backup
4. dhcp failover
5. dhcp relay agent
6. dhcp filter
7. dhcp reservation

#### IPAM

1. what is IPAM and purpose of IPAM
2. why need dedicated server
3. policy for ipam sever
4. which service monitor and manage by IPAM

##### Practical

1. Install IPAM
2. configure IPAM with six step
3. create dhcp scope using IPAM 4 create DNS zone
4. check monitoring of sevices

#### Remote connectivity and VPN

1. what is VPN?
2. type of VPN
3. tunneling protocol
4. authentication protocol
5. what is routing

##### Practical

1. install routing and remote access
2. configure LAN routing
3. configure vpn connection (VPN client)

#### Network policy server

1. what is Radius server
2. what is authentication authorization and accounting
3. RADIUS server operation method and radius client
4. RADIUS port number
5. what is network policies (NPS)?

##### Practical

1. P1 configure RADIUS for wireless client
2. confiure NPS for remote access

#### IPv4 addressing and IPv6 addressing

1. what is ip address?And type of ip address
2. class of ip address
3. public ip address and private ip address
4. what is static ip address, dhcp and APIPA
5. what is ipv6 address?
6. ipv6 dhcp process
7. what is NAT?
8. what id gateway address?
9. what is loopback address?
10. different type of ipv6 address
11. ipv6 tunnelling

##### Practical

1. configure ipv6 address manually and test with ping
2. IPv6 address automatically
3. ping utility
4. ipconfig
5. tracert / traceroute
6. dhcpv6

#### DFS

1. what is DFS? And purpose of DFS
2. Define DFS namespace and DFS replication
3. what is folder target?

##### Practical

1. install DFS namespace and replication
2. configure common namespace
3. configure replication and check
4. configure branch cache

#### Advance Network

1. what is SDN?
2. what is SCVMM?

### Module: 14 Identity with Windows Server

#### Active directory domain services

1. what is domain controller?
2. describe forest, domain, tree, schema, OU, container, site, subnet,
3. partition, trust relationship
4. what is active directory?
5. what is global catalog server?
6. what is ADC AND RODC?
7. what is operation master role?
8. type of operation master role and describe all role.
9. difference between transferring and seizing role
10. password policy
11. what id profile and type of profile?
12. group nesting and scope, type of group

##### Practical

1. install ADDS and create a new forest
2. give membership of pc to domain
3. create a ADC
4. create RODC and password replication
5. create a new site
6. create a new child domain
7. create a new tree
8. create a new user with GUI and CLI
9. create roaming profile
10. create OU and give delegation
11. create a group
12. transfer roles—PDC, RID , schema master ,
13. Doamin name master—
14. GUI and ntdsutil
15. IFM

#### Advance feature

1. describe account policy
2. describe account lockout policy
3. what is trust relationship
4. type of trust relationship describe all trust
5. what is site and subnet ?

##### Practical

1. manage active directory offline
2. restore object of active directory from AD Recycle bin
3. backup active directory
4. manage active directory replication---repadmin DcDiag
5. create multiplae UPN suffix multidomain enviourment
6. configure trust between forest check with login
7. configure ADDS sites and subnet

#### Group Policy

1. what is group policy?
2. what is default policy? Default Domain and domain controller
3. what is user configuration and computer configuration
4. what is GPO?
5. define software setting, windows setting, and administrative templates
6. link GPO
7. delegation GPO management
8. inheritance policy
9. filtering
10. script, templates

##### Practical

1. backup restore import and copy GPO
2. force group policy command
3. check group policy settings
4. configure folder redirection
5. software installation ---assign and publish
6. drive map through policy

#### Certification services

1. purpose of certification
2. certificate service and its role service –certificate authority, certificate enrolment policy web service
3. standalone v/s enterprise CA
4. root CA and subordinate CA
5. describe certificate templates and how to use it

##### Practical

1. install certiface services ---certifacte authority and web enrolment
2. issue certificate through web enrolment and make secure web site
3. self-signed certificate
4. mange certificate---using template and issue certificate for computer
5. backup CA

#### ADFS

1. what is federation services
2. ADFS service component
3. ADFS requirement
4. multifactor authentication
5. web application proxy

##### Practical

1. Install ADFS service and configure between two trusted organizations (relay party trust)
2. multifactor authentication

#### ADRMS

1. what is ADRMS
2. how to secure data and type of security 3 what is service account

##### Practical

1. install ADRMS and secure data (different security apply)

# Redhat Linux ServerAssignment

### Module 15

#### Linux server - Understand and use essential tools

##### Assignment Level Basic

* 1. Full form of bash.
  2. What is bash shell.
  3. What is the meaning of $ in terminal.
  4. What is the meaning of # in terminal.
  5. How many virtual console available in Linux 7.0 ?
  6. What is file system hierarchy in linux?
  7. What is “ / “ in linux?
  8. What is the purpose of “ /etc “ ?
  9. What is the purpose of “ /home “ ? 10.What is the Purpose of “ /boot “ ? 11.What is the use of man command? 12.What is the use of passwd command?

13.I want to search specific string in man, what should I do? 14.How to exit from man?

15.What is the use of “ pinfo “ command ? 16.What is the use of “sosreport “ command ? 17.By default location to store “ sosreprt “ is…. 18.What is the use of “>file “command?

19.What is the use of “>>file “command? 20.What is the use of “2>file “command? 21.What is the use of “2>>file “command? 22.What is the use of “whereis “command? 23.What is the use of “echo “command?

1. What is the use of “tty “command?
2. What is the use of “| “and “tee “command in terminal? 26.What is the use of “vim “?

27.Give a list of “ vim modes “ 28.What is “gedit “?

1. What is “ tar “ ?
2. I want to get backup of /etc directory, how do i wright down the command? 31.From which command, I extract .tar file ?

32.I want to see the content of .tar file, without extracting this, which command will help me

33.I want to copy “ file1 “ on remote desktop computer, which command will help ? 34.Which command is used for remote synchronize?

1. What is ACL
2. Which command is used to view the ACL?
3. Ext3 and exe4 both file systems are supported the ACL, is true or false? 38.Which command is used to modify ACL
4. What is the use of “grep” command?
5. What happened if i use < grep -i -v ‘cat’ > command?

##### Assignment Level Intermediate

1. What happed if I press “ctrl + alt + f1”
2. What happened if I press “ctrl + alt + f2” ?
3. What happened if I press “ctrl+alt+f3” ?
4. Short cut key to finish session in terminal
5. What is gnome in linux 7.0?
6. How many workspace are available in linux 7.0?
7. What is the purpose of “ /dev ” ?
8. What is absolute path ?
9. What is relative paths ?
10. What is the difference between “ls -l” and “ls -la” command ? 11.What is the use of “pwd” command?

12.What is the use of man command? 13.What is the use of passwd command?

14.I want to search specific string in man, what should I do? 15.How to exit from man?

16.What is the use of “ pinfo “ command ? 17.What is the use of “sosreport “ command ? 18.By default location to store “ sosreprt “ is….

##### Assignment Level Advance

1. how do we switch workspace?
2. use of "passwd" is...
3. use of "head" and "tail" command is....
4. use of history command is....
5. which command is used to add new user
6. meaning of "tail -n 20" command is....
7. What is difference between “cd” and “cd ..” command?
8. Explain the command “ cp file1 file2”
9. What the use of below command rm 10.rm -r mv mkdir
10. Explain the command “ mkdir -p “
11. What happened if i use this command “ ls ab\* “ ?

##### Task: 1

1. Use Ctrl+Alt+f1 to Ctrl+Alt+f6
2. Change the password for student user from “student” to 55TurnK3y
3. Check only time in terminal
4. Check only date in terminal
5. Check last three line of “passwd” file
6. Check word count, line count, character count in “passwd” file
7. Check hidden files in “/” directory
8. Use “history “commands
9. Use < !command > and < !number > from history

##### Task: 2

1. Your present working directory is “ /home/student/Desktop “

and with the help of relative path create “boss” directory in “ /tmp/hello/dir1 “

1. Find your present working directory
2. Create three directory [ dir1, dir2. Dir3 ]
3. Remove this three directory [ dir1, dir2, dir3
4. Create blank file in terminal
5. Use “cp” command
6. Use “mv” command
7. Use “rm” command
8. Use “rm –r” command

##### Task: 3

1. View the “gedit” man page
2. Use “pinfo” command
3. Reading documentation in /usr/share/doc
4. Access customer portal using <https://access.redhat.com/help>
5. Create “sosreport”

##### Task: 4

1. Redirect the output of “date” command to “/tmp/SavEd-timestamp
2. Delete Saved-timestamp file.
3. Send command output to file, and errors to different file.
4. Send output and errors to the same new, empty file
5. Run command, save output in a file, discard error messages.
6. Open and learn “ vimtutor “
7. Edit any file with “gedit “
8. Redirect a long listing of all content in student’s home directory, including hidden directories and files, into a file named “
9. editing\_final\_lab.txt “
10. Remove the time column, but leave the month and day on all line (block selection visual mode)

##### Task: 5

1. Get backup of /etc
2. Create new directory “FoLDER”
3. Extract this new backup in FoLDER directory
4. Check the content of this new backup without extracting
5. Compress /etc
6. Check the size after compression
7. Graphically manage extract and compression
8. Create new file with vim . name “f1”
9. Copy this “f1” on remote desktops’s “/” directory
10. Create new file name 123 on “/”directory of desktop machine 11.Start server machine

12.Copy above /123 file on current system location 13.Use sftp command

##### Task: 6

1. Assign Read, write, executable permission on directory “dir1” for user “u1”
2. Add user “u3” in group “red”
3. Assign Read, write, executable permission on directory “dir1” for group “red”
4. Create a new directory name “dir2”
5. Copy the permission of “dir1” to the new directory “dir2”
6. Remove only user’s ACL on “dir”1
7. Remove all ACL on “dir2”

##### Task : 7

1. Create any file with the help of VIM
2. Replacing text in VIM
3. Copy and Paste any contents in VIM
4. Search any content in VIM

### Module 16

#### Linux server - Operate running systems

##### Assignment Level Basic to Advance

1. What is PID ?
2. What is PPID?
3. What is the use of “ ps “ command ?
4. What is the use of “ ps aux “ command ?
5. What is the use of “ tops “ command ?
6. Which command is used to change priority value ?
7. What is the use of “jobs” command ?
8. What is the use of grep command ?
9. What is system? 10.What is daemons?
10. I want to check the service status for” sshd”, which will help me? 12.How to stop and start services in terminal?
11. What is the use of openSSH ?
12. Which command is used to generate key in linux ? 15.Which command is used to copy ssh key?

16.How do we prohibit the root user from logging in using ssh? 17.How do we prohibit password authentication using ssh?

18.Where we find general logs ? 19.Where we find secure logs ? 20.Where we find mail log ?

1. Where we find scheduling logs? 22.Where we find booting logs?

23.What is the use of “lastb” command ? 24.Where we find general logs ?

25.Where we find secure logs ? 26.Where we find mail log ?

27.Where we find scheduling logs? 28.Where we find booting logs?

29.What is the use of “lastb” command ?

##### Assignment Level Intermediate



1. Remote host is “NADIAD”, Remote user is “KAMAL,

how to access remote user via ssh? [ wright down the command]

1. What is the use of “w -f “command ?
2. What is “SSHS host keys “?
3. What is the default location for server’s public key in client side?
4. I want to fire “ls -l /etc” command on remote host “desktop” [ wright down the command ]
5. What is the use of this command “ #journalctl --since today “
6. What is “ chronyd “?
7. Full form of NTP
8. Port number for NTP is…
9. I want to check timzone, which command will help me ? 11.How to set timezone? Give a comman….

##### Task :1

1. Display all processes on display
2. In terminal, Determine the number of logical CPUs
3. Start and check any new job
4. Start any new job in background
5. Start any background job on foreground
6. Check running process
7. Check all running process under user
8. Kill any process via it’s PID
9. Change nice values for any new process 10.Change nice value for any running user 11.Check the status of sshd.service 12.Stop the servive of sshd.service 13.Start the service of sshd.service 14.Login in server vm

15.Display the status of “chronyd” 16.Restart “sshd.service”

##### TASK: 3

1. Start desktop machine
2. Get remote access of server machine
3. Create new user in server name “user1”
4. From desktop machine,login “user1” of server user
5. Execute single command “hostname” , on remote host

(server), and as a remote user “user1”

1. Display a list of currently logged into the computer
2. Generate private-public ssh key with password
3. Import this key on remote host side

##### Task: 4

1. Open general logs
2. Open secure message logs
3. Open only mail logs
4. Check scheduling logs
5. Check booting logs
6. See the info about “bad logging”
7. Check emperor logs
8. Check today’s temporary logs
9. Set new time zone

### Module 17

#### Linux server - Configure local storage Assignment

##### Level Basic to Advance

1. What is…
2. /dev/sda
3. /dev/sdb
4. /dev/sda1
5. /dev/sda2
6. /dev/vda
7. /dev/vda1
8. What is the use of “df “command?
9. From which command we get UUID of file system?
10. I want to use /dev/sdb1, which command will used? (wright down full argument)
11. Where we find all hardware info?
12. Which command is used to create MBR partition?
13. Which command is used to create GPT partition?
14. What is sda, sdb, sdc, sdb1, sdb2, sdb3?
15. What is the use of swap partition?
16. Explain LVM
17. Define following terms,
18. PV
19. VG
20. LV

12.From which command we can get information about LVM status?

##### Task :1

1. Check current block details
2. Mount removable media
3. Unmount removable media
4. Create soft link
5. Create hard link
6. Show inode number of all files
7. Find a file is equal to 10 mb
8. Find a file which have more then 10 mb
9. Find directory list 10.Find file list 11.Find soft link list

##### Task:2

1. Create a new partition with following requirements, Size 1G File type xfs
2. Create three primary partitions
3. Mount new partitions via UUID and LABLE
4. Create “swap” partition

##### Task: 3

1. Create new LVM
2. Extend this new LVM

### Module 18

#### Linux server - Manage user and Groups and working with file systems

##### Assignment Level Basic

1. What is default uid for root user ?
2. What is default uid for system user ?
3. What is the uid for normal users ?
4. How to add comment in user file?
5. From “ /etc/passwd “ which information will we gather ?
6. From “ /etc/shadow “ which information will we gather ?
7. From “ /etc/group “ which information will we gather ?
8. From “ /etc/gshadow “ which information will we gather ?
9. What is the meaning of + and – in file permission? 10.What is “ r “ “ w ” ‘ x “ in file permission

11.What is “ 4 “ “ 2 “ “1” in files permission 12.What is the use of umask?

13.What is default root permission for directory?

##### Assignment Level Intermediate

1. How to assign another new home directory for new user?
2. Command to check group membership of any user
3. What happened if I use “ su – “ command ?
4. Which command is used to delete any user with its home directory?
5. How to add new user without home directory ?
6. Command to assign account expiry to the user ?
7. Command to add a new group …
8. What is default root permission for file?
9. What is the default umask for root? 10.What is the default umask for student?
10. Which command is used to set user ownership?
11. Which command is used to set group ownership?

##### Assignment Level Advance

1. I have on user with the name of KAMAL, Now, I want to add this user in the group name N which command will used?
2. What is the difference between “ usermod -G “ and “ usermod -aG “
3. What is the meaning of “ -1 “ in password state information?
4. Which command tis used to remove the password of any user?
5. What is the use of “ gpasswd “ ?
6. Command to change password policy
7. What is use of “ sudo “
8. Command to reset virtual machine
9. How to change user and group ownership on same time 10.Command to change user permission on directory 11.List of special permission in Linux 7.0 is……
10. What happened if i used this command…?[ #chmod u+s /user/bin/vim ]
11. What happened if i used this command…. [ #chmod g+s /data ]

##### Task: 1

1. Find details about current logged-in user.
2. Show all processes on terminal
3. Create primary group
4. Create supplementary group
5. Find groups details and list on terminal P6. Find user details and list on terminal.
6. Use “sudo”
7. View the last 5 lines of the “ /var/log/messages “
8. Add a new user with name “ NuPuR “
9. Remove this user and user’s home directory 10.Create new supplementary group name is “ whEEL “ 11.Create a new user with name “ ELviS “

12.Add / Append a user to a supplementary group 13.Restrict / Lock login access for “ ELviS “ user

14.Create a new user name “ LiNuX without home directory 15.Create a new user name “ RedHat “ with new home directory “ 16./etc/HatRed

17.Create a new user with two(2) days expiry 18.Remove password for “ ELviS “ user

19.Check user password policy for “ LiNuX “ user

##### Task :2

1. Login from “LiNuX” user
2. Create new directory on desktop name is "FoLdEr”
3. Change group ownership from LiNuX to root on “FoLdEr” directory
4. Create new file on /etc/ with name “ FiLe”
5. Check permissions of above file
6. Login from “student” user
7. Create new directory on students home with name “file1”
8. Remove read and write permission for group and other on above file “file1”
9. Add execute permission for everyone on “file2” 10.Set Read,write,execute for USER
10. Set Read and execute for GROUP
11. Set No permission for other on “Directory1”
12. Create new group name “ateam” , And add two new user in this group “andy” and “alice”, set password is “password”
13. Login from root and root home directory
14. Create a new directory in “/home” name is “ateam-text”
15. Change the group ownership of the ateam-text directory to “ateam”. 17.Ensure the permission of ateam-text allows group members to create



### Module 19

#### Linux server - Deploy, configure, and maintain systems Assignment

##### Level Basic to Advance

1. What is RPM package manager?
2. What is “ yum “
3. I want to check all list of available packages, which command will help
4. From which command, we register with RedHat satellite ?
5. What is the use of repo file?
6. what is “at”
7. Where we find “atd” daemon?
8. Which command is used to get an overview of the pending jobs for user?
9. Which command is used to remove a scheduled job? 10.What is the use of ‘crontab -l’ command?

11.What is the use of ‘crontab -r’ command? 12.What is bootloader?

13.is the bootloader in linux 7.0 14.What is POST?

15.Full form of POST 16.Full form of MBR 17.What is kickstart

1. What is the use of “url” in kickstart file?
2. Who allowed the graphical installation to be viewed remotely via VNC?
3. Which command is used in kickstart for clear the specified partitions before installation? 21.Which command is ignoring the specified disks when installing?
4. I want to configure kickstart graphically, what should I do? 23.How to check the syntax of kickstart configuration file ?

##### Task:1

1. Run command to register with RedHat satellite( noworry if not registered
2. Show all available packages
3. Check particular yum packagers
4. Check a file, which is responsible for password
5. Check all file which is created in yum
6. Install “vsftpd.x86\_64”
7. Show all configuration file of “vsftpd”
8. Check script file of “vsftpd”
9. Create repo file 10.Install new kernel

##### Task: 2

1. Set text base logins only
2. Set Graphical and text base logins
3. Recover root password
4. Repairbootloader

##### Task: 3

1. Install all httpd package
2. Open kickstart configuration graphically
3. Configure new kickstart file
4. Show full configuration of new kickstart file
5. Validate new kickstart file
6. All http on firewall
7. Reload firewall.
8. Start and restart http
9. Install new foundation using new kickstart file

### Module :20

#### Linux server - Manage basic networking & Security

##### Assignment Level Basic

1. Full form of “ ping “
2. What is the use of “ ping “ command ?
3. What is the meaning of “prefix” is ?
4. Which protocol is used in PING ?
5. Port number of ICMP ?
6. What is network ID and broadcast ID in IP range ?
7. What is gateway ?
8. What is SeLinux?
9. Wright down the list of SELINUX modes and their uses 10.In which mode, reboot is required after modification? 11.What is SeLinux Booleans

12.Which command is used to check the selinux contents 13.What is firewall ? why we use

1. What is firewall?
2. Which command is used for graphically manage firewall? 16.Which command is used for command line manage firewall? 17.What is the use of “ –get-default-zone “ ?

##### Assignment Level Intermediate to Advance

1. Which command is used to manage IP addressing in inux 7.0 ?
2. By default which name will assign to network card in RHEL ?
3. Which command is used to add/create a new network connection?
4. From which command is used to show the network connection?

##### Task: 1

1. Open graphically IP management
2. Check current lan cpnnection
3. Add new cpnnection name “KAMAL”
4. Connect “eth0” to this new connection “KAMAL”
5. Up the new connection “KAMAL”
6. Show the info about the new connection
7. Assign and append new IP on new connection “KAMAL”
8. Reload the conenctions
9. Again create new connection with same name “KAMAL” 10.Delete both new connections one by one.

11.Assign new hostname 12.Restart the NetworkManager

##### Task :2

1. Check current selinux mode
2. Change selinux mode into “permissive” 15.Change selinux mode into “Enforcing” 16.Start server machine.

17.Change the default selinux mode to permissive via VIM 18.Check selinux contents on process

1. Install httpd.services
2. Check selinux contents on /var/www/html 21.Create new .html file in /var/www/html

22.Open this file in firefox and check is accessible or not 23.Delete this .html file

24.Create new .html file on desktop 25.Move this file in /var/www/html

26.Now, open this file and check is accessible or not 27.Update selinux contents on this files

1. See the status of all booleans
2. “ON” the booleans of httpd\_use\_nfs 30.Get a list of only modified Boolean 31.Get details of all selinux logs

##### Task:3

1. Show current default zone ?
2. Show all firewall zone
3. Get list of services which is running in current zone
4. Show the all profile of all zone
5. Remove ssh services
6. Reload the firewall
7. Add ssh services in firewall
8. Graphicallymanagethefirewall

### Module 21

#### Linux server -deployment of network services

##### Assignment Level Basic to Adanvce

1. What is KVM?
2. What is Virtualization?
3. What are the key benefits of virtualization?
4. For building RHEL virtualizations which two packages are required?
5. What is nested virtualization?
6. Full form of LDAP is
7. What is LDAP?
8. Which package is used for graphically access ldap configuration
9. Explain is NFS 10.Explain SMB

11.What is the use of autofs? 12.What is DNS?

13.What is postfix mail server? 14.What is iscsi storage

##### Task: 1

1. Install qemu-kvm qemu-img
2. nstall “virt-manager” , “ libvirt “ , “ libvirt-python “ , “ python-virtinst “ , “ linvirt-client”
3. Create new virtual machine
4. Create LDAP client
5. Create NFS shared directory
6. Do Automounting NFS
7. Create SMB shared directory
8. Mount and use SMB shared directory
9. Configuration of DNS Server 10.Postfix configuration 11.MARIADB configuration

# TERM-4

**Ethical Hacking Assignment**

### Module 27 Foundation

1. Difference between hardware and software.
2. Define IP address range and private address range.
3. Explain Network protocol and Port number.
4. Explain Types of Network Devices

### Module 28: Information Gathering

1. What are the types of hacker?
2. Explain in brief - Ethical hacking and cyber security.
3. Explain Foot printing Methodology
4. Find basic information using Google advance search operator and Pipl search
5. Find vulnerability tool and check open port and service.

### Module 29: Hacking and System Malware

1. What are the different types of hacking methods?
2. Explain Types of Password Attacks
3. Explain Password Cracking Tools: pwdump7
4. Explain Types of Steganography with QuickStego
5. Perform Practical on key logger tool.



* **Malware**

1. Define Types of Viruses.
2. Create virus using Http Rat Trojan tool.
3. Explain any one Antivirus with example.

### Module 30:

**Web server and application base Attacks**

1. Explain MAC spoofing and Email spoofing
2. Perform practical of MITM tool and social engineering Tool
3. Explain Kali linux tool SYN Flooding Attack using Metasploit
4. Find online email encryption service
5. Types of Firewall
6. Explain Evading Firewalls
   * Web Based Hacking
7. What is Session Hijacking Explain with Techniques?
8. Find DoS/DDoS Attack Tools
9. Explain SYN Flooding Attack with example
10. List of Web App Hacking Methodology
11. SQL Injection Methodology
12. Explain sql injection with any tool

### Module 31: Wireless and android hacking

1. Wireless Terminologies
2. Types of Wireless Antenna
3. How to secure your mobile phone
4. List of Android Phones Security Tools
5. Perform practical Android phone hacking