**N+ Assignment Module**

Network Fundamentals and Building Networks

• Beginner Question

1.What is network?

Ans. a computer network is asystem that connects numerous independent computers in order to share information (data) and resources.

2. List Common Network Components

Ans. network components , switch, cable, hub, router, on type network components cable.

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

Ans. Open Device Manager. Press Windows key + R, type “devmgmt. ...

2: In the Device Manager window, select “Action” in the top menu bar, then click “Add legacy hardware”

3: In the Add Hardware Wizard, click “Next”.

• Intermediate Question

1.Explain application of network

Ans. A network application is a software program which operates over a network and allows communication and data sharing between multiple devices and users.

2. What do you mean by Node?

Ans. 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.

3. practice of simple file folder sharing

Ans. Done

• Advance Question

1.List types of devices

Ans.  input devices, processing devices, output devices and memory (storage) devices. mousa  devices., printer devices, Wecam devices, Projector devices, Smartphone devices, USB flash drive devices, mobile computing devices.

2.Explain types of router Topic: Types of Network

Ans. Look on the front, back, sides, or bottom of your router for the manufacturer name and model. In the example above, the manufacturer's name is printed in front of the router.1- Wireless Router , 2- Core router, 3 Broadband routers

Types of Network.

PAN Personal Area Network,

LAN Local Area Network,

MAN Metropolitan Area Network,

WAN (Wide Area Network,

• Beginner Question

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

Ans. WAN is an acronym for Wide Area Network. LAN is a network that usually connects a small group of computers in a given geographical area. MAN is a comparatively wider network that covers large regions- like towns, cities, etc. The WAN network spans to an even larger locality.

2. Common Network Components

Ans. network components are NIC, switch, cable, hub, router, and modem.Depending on the type of network that we need to install, some network.

• Intermediate Question

1.Explain Wide Area Network

Ans. A wide-area network (WAN) is the technology that connects your offices, data centers, cloud applications, and cloud storage together.

2. Explain Network Backbone

Ans. A backbone or core network is a part of a computer network which interconnects networks, providing a path for the exchange of information between different LANs

3.Explain CAN

Ans. A campus area network CAN is a computer network that spans a limited geographic area. CANs interconnect multiple local area networks LAN within an educational or corporate campus. Most CANs connect to the public Internet.

• Advance Question

1.Define Physical Network Topologies

Ans. Physical topology describes the actual or the physical layout of a network, such as the physical arrangement of wires, media computers, or cables in a network.

2. Network Architecture: Peer-to-Peer

Ans. A peer-to-peer (P2P) architecture consists of a decentralized network of peers - nodes that are both clients and servers.

3.Point-to-multipoint network Topic: Network Devices

Ans. A point-to-multipoint network includes a number of wireless radios pointing to a centralized uplink radio, with access to a fiber or Ethernet network.

• Beginner Question

1.Why we use Network and Devices

Ans. network,, Using a network allows you to share: hardware, such as a printer. software, allowing multiple users to run the same programs on different computers

Devices,, mobile devices also allows students instant access to the latest news, information, statistics and discoveries.

2.Explain Switch?

Ans. A switch is used in a program where multiple decisions are involved  A switch must contain an executable test-expression.

• Intermediate Question

1. Define list of cables in use of network

Ans. Different types of network cables, such as coaxial cable, optical fiber cable, and twisted pair cables, are used depending on the network's topology, protocol, and size.

1. Explain Define Access point

Ans. 1. Generically, any computer or device in a network that users can gain access to can be called an access point. 2. In most cases, an access point is a base station in a wireless LAN.

1. Which types of transmission modes in computer network

Ans. Simplex Transmission Mode.

Half Duplex Transmission Mode.

Full Duplex Transmission Mode.

4.Practice on Remote Desktop connection

Ans. Done.

5.Practice on remote assistance

Ans. Done.

• Advance Question

1.Explain Repeater and router

Ans.  A Router is a communication device that is used to connect two different networks.  A Repeater is a communication device that is used to regenerate a signal.

2.What is multiplexer?

Ans. A multiplexer (MUX) is a network device that allows one or more analog or digital input signals to travel together over the same communications transmission link.

3.Explain MODEM

Ans. A modem is a network device that both modulates and demodulates analog carrier signals called sine waves for encoding and decoding digital information for processing.

1. Monitor "event viewer" Topic: Install and configure DHCP, DNS

Ans. Install the DHCP Server..

1. From the Windows desktop, open the Start menu, then select Server Manager.

2.On the menu, go to Manage, then select Add Roles and Features

3.On the Before you begin page, select Next

.4.On the Select installation type page, select the Role-based or feature-based installation option, then select Next.

install the DNS Server**..** In the Start menu, search for Network Status.

Select Change adapter options.

Right-click the network connection and open Properties.

Locate and select the Internet Protocol Version 4 (TCP/IPv4) option from the list.

Click the Properties button to open the IPv4 settings.

• Beginner Question

1. Explain DHCP Dynamic host configuration protocol

Ans. 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

Ans. Dynamic Host Configuration Protocol (DHCP) is a network protocol used to automate the process of configuring devices on IP networks, thus allowing them to use network services such as DNS, NTP, and any communication protocol based on UDP or TCP.

• Intermediate Question

1.Explain Domain naming Services

Ans. a domain name system turns domain names into ip addresses. Which allow browsersto get to websites and other internet resources. Every device on the internet an ip address, which other devices can use to locate the device.

2.Application of DNS with one example

Ans. DNS or Domain name system translates human readable domain names for example [www.amazon.com](http://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?

Ans. network topologies is a Bus, Star, Ring, Mesh, Tree, Types of Network Topology.

1. What is Internet topology?

Ans. internt topology is the structure by which hosts, routers or autonomous systems ases are connectrd to each other.

1. What is protocol

Ans. A protocol is a set of rules and guidelines for communicating data. Network have to follow these rules to successfully transmit data.

• Intermediate Question

1. What is the most common network topology?

Ans. topology is a type of network topology in which all devices are connected to a single cable called bus.

2.Explain star topology in networking?

Ans. star topology is the most mommonly used topology system. Every node connects to a central network device in link a hub, switch or computer.

• Advance Question

1.Explain Hybrid topology

Ans. hybrid topology is a type of network topology in which two or more defferent topologies are integrated or combined to lay out a network.

2.What is physical and logical topology?

Ans. A physical topology describes how network devices are physically connected in other words, how wireless connectivity, and more. A logical topology describes how network devices appear to be connected to each other.

3.What are the types of logical topology?

Ans. bus topology, ring topology, star topology, Tree topology, Mesh topology, Hybrid topology.

Topic: OSI Model

• Beginner Question

1. What is OSI model explain?

Ans. The OSI data model provides a universal language for computer networking, so diverse technologies can communicate using standard protocols or rules of communication. Every technology in a specific layer must provide certain capabilities and perform specific functions to be useful in networking.

2.List of Application layer protocol

Ans. application layer protocols define how application processes clients and servers running on different end systems, pass messages to each other.

3.How many types of protocols are there?

Ans. FTP, Telnet, SMTP, User Datagram Protocol, Transmission Control Procedure, Gopher, POP3, Dynamic Host Configuration Protocol, HTTP

• Intermediate Question

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

Ans. key difference TCP/IP and OSl model. TCP/IP is a preactical model thet addresses specific communication challenges and relies on standardized protocols.

1. What is TCP IP networking?

Ans. TCP/IP stands for transmission control protocol/internet protocol and is a suite of communication protocol used to interconnect network devices on the internet.

• Advance Question

1. What is a wired Internet connection?

Ans. A wired network uses cables to connect devices such as leptop or desktop computers to the internet or another network.

1. What are the disadvantages of wired networks?

Ans.Wired network disadvantage. Less mobility for users, Installation time, Maintenance, If not laid properly, wires can make a space look untidy, be a trip hazard or become disconnected easily by accident.

3.How do I configure network authentication?

Ans. security right-click network authentication service and select configure to start the configuration wizord.

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

Ans. done

5.Download google chrome

Ans. done

6.configure "date and time" opting in control panel Topic: TCP/IP

Ans. 1 Open the Date and Time window using any of the methods previously explained. 2. Click the Internet Time tab. 3. To reconfigure the current settings, click.

• Assignment level Basic:

1.What is TCP/IP?

Ans. Transmission Control Protocol/Internet Protocol (TCP/IP) is a networking protocol that allows two computers to communicate.TCP = all data small data

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

Ans. TCP/IP full form is transmission control protocol / internet protocol.

• Assignment level Intermediate:

1.List out the types of IP

Ans. There are mainly four types of IP addresses**:** Public, Private, Static. Dynamic.

2.What is protocol?

Ans. protocol is a controlled sequence of messages that is exchanged between two or more systems to accomplish a given task. .. protocol specifications define this sequence together with the format or layout of the messages that are exchanged.

3.DO a practical to set the TCP/IP in network adapter?

Ans. Done

Topic: Cables

• Beginner Question

1.Types of cables and connectors?

Ans. cables connectors > coaxial cable connectors, twisted-pair cable connectors, and fiber-optic cable connectors . optical fiber connector, BNC connector, XLR connector, DIN connector,

2.Explain twisted pair cable and shielded twisted pair cable

Ans. 1.a twistwd-pair cabling system is a cable consisting of one or several pairs of copper-wires. These wires are twisted together polymeric compound. 2 shielded twisted pair cabling acts as a conducting shild by covering the four pairs of signal-carrying wires as a means to reduce electromagnrtic interference.

• Intermediate Question

1.Which of these cables connect computers to monitors?

Ans. open file explorer from the taskbar or the start menu, or press the windows logo key-e Select this pc frome left pane. In the drive list, select a drive letter. In the foder box, type the path of the folder or computer, or select browse to the folder or computer. Select finish.

2.How do I connect to a shared printer?

Ans. simply open computer screen and click on network.

1. Find a hosting computer on the network and open it
2. Right click on the shared printer and choose connrct option
3. Another way is to open device manager and right click to find option add printer.

• Advance Question

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

Ans. 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?

Ans. Computer ports in common use cover a wide variety of shapes such as round (PS/2, etc.), rectangular (FireWire, etc.), square (Telephone plug), trapezoidal (D-Sub — the old printer port was a DB-25), etc. There is some standardization to physical properties and function.

1. How do I connect my laptop to my printer without cable?

Ans.To connect a wireless printer, follow these steps:

Select the Start button, then select Settings > Devices > Printers & scanners > Add a printer or scanner. ...

Wait for it to find nearby printers, then choose the one you want to use, and select Add device.

4.Application and brief explanation of fiber optic cable and Coaxial cable

Ans. Optical fibre and Coaxial cables, both are different types of guided media cables. Optical fibre is made up of plastic and glass and is used to transmits signals in form of light or optics whereas coaxial cable is made using plastic and copper wires and is used to transmits signals in form of electric signals.

5.Which of following operates at the 5GHz frequency range?

Ans. Wi-Fi 802.11ac operates in a 5GHz frequency band in the range of 5.17GHz - 5.835GHz, but it doesn't mean that it uses all the band. Wi-Fi divides the frequency band into a number of channels each with 20MHz bandwidth, this bandwidth is the actual set of frequencies used by the device.

6.What frequency does 802.11g use?

Ans. IEEE 802.11g - Released in 2003, it operates in the 2.4 GHz frequency band and offers speeds of up to 54 Mb/s. Devices implementing this standard; therefore, operate at the same radio frequency and range as 802.11b, but with the bandwidth of 802.11a.

7.What standard is compatible with 802.11a?

Ans. It uses MIMO technology to improve communication performance. Up to eight antennas can be supported. The 802.11ac standard is backward compatible with 802.11a/n devices; however, supporting a mixed environment limits the expected data rates.

Topic: TCP/IP concepts - IPv6, IPv4

• Beginner Question

1.What is the difference between IPv4 & IPv6?

Ans. The main difference between IPv4 and IPv6 is the address size of IP addresses. The IPv4 is a 32-bit address, whereas IPv6 is a 128-bit hexadecimal address. IPv6 provides a large address space, and it contains a simple header as compared to IPv4.

2.Explain TCP/IP 2. Explain IPV6 Address with Address structure

Ans. IPv6 uses 128-bit (2128) addresses, allowing 3.4 x 1038 unique IP addresses. This is equal to 340 trillion trillion trillion IP addresses. IPv6 is written in hexadecimal notation, separated into 8 groups of 16 bits by the colons, thus (8 x 16 = 128) bits in total.

3.Define IPV6 reserve address

Ans. These addresses usually have the first 57 bits of the interface identifier set to 1, followed by the 7-bit anycast ID. Prefixes for the network can be of any length for routing purposes, but subnets are required to have a length of 64 bits.

4.Explain Difference between public ip and private ip

Ans. Private IP Address and Public IP Address are used to uniquely identify a machine on the Internet. Private IP address is used with a local network and public IP address is used outside the network. Public IP address is provided by the Internet Service Provider (ISP).

5.Create straight and cross cables and it's testing

Ans. In this cable, transmitting pins of one side connect with the receiving pins of the other side. The wire at pin 1 on one end of the cable connects to pin 3 at the other end of the cable.

• Intermediate Question

1.Brief explanation of ip Addresses

Ans. An Internet Protocol (IP) address is the unique identifying number assigned to every device connected to the internet. An IP address definition is a numeric label assigned to devices that use the internet to communicate.

2.What is the advantage of IPv6 over IPv4?

Ans. IPv6 has a much larger address space than IPv4, allowing for more devices, networks, and services to be connected. IPv6 also offers some advantages over IPv4, such as improved security, performance, and scalability.

3.Assign multiple IPv4 in single network adapter [lan card]

Ans.How to Add an Additional IP Address via Windows GUI

1. Open the Control Panel –> Network and Internet –> Network and Sharing Center -> Change adapter settings (or just run the ncpa.cpl command);
2. Open the properties of your network interface;
3. Select TCP/IP v4 in the list of protocols and click Properties;

4.Assign simple IPv6 between two system and ping it.

Ans. Activity 8 - Ping an Internet Host by IPv6 Address

1. Type ping 2001:4860:4860::8888 and press Enter.
2. Observe the results. If you see replies indicating success, you have IPv6 Internet connectivity.

5.Assign and configure simple IPv4 between systems

Ans. Right-click on the network adapter you want to assign an IP address and click Properties. Highlight Internet Protocol Version 4 (TCP/IPv4) then click the Properties button. Now change the IP, Subnet mask, Default Gateway, and DNS Server Addresses. When you're finished click OK.

• Advance Question

1.Which is faster IPv4 or IPv6?

Ans. In general, there's no major difference between IPv4 vs IPv6 speeds, though some evidence does suggest that IPv6 might be slightly faster in some situations.

2.What does TCP do?

Ans. transmission Control Protocol (TCP) is a communications standard that enables application programs and computing devices to exchange messages over a network. It is designed to send packets across the internet and ensure the successful delivery of data and messages over networks.

3.Give security in sharing

Ans. 8 tips for secure file sharing Use end-to-end encryption. Make sure your files are end-to-end encrypted. Choose a privacy-focused provider. Use strong passwords. Turn on two-factor authentication (2FA). Password-protect files. Set sharing time limits. Monitor file access. ... Use a VPN on public WiFi.

4.Configure "Map network drive"

Ans. Map a network drive in Windows Open File Explorer from the taskbar or the Start menu, or press the Windows logo key + E. Select This PC from the left pane… In the Drive list, select a drive letter. .. In the Folder box, type the path of the folder or computer, or select Browse to find the folder or computer. .. Select Finish…

Topic: IP routing and Routing protocols

• Beginner Question

1. What Is Routing?

Ans. routing is the process of path selection in any network. A computer network is made of many machines, called nodes. and paths or link that connect those nodes. Communication between two nodes in an interconnected network can take place through many different paths.

1. How Routing Starts Up?

Ans. The router looks up the header packet and determines the packet destination. It then looks up its internal table and forwards the packet—either to the next router or to another device, such as a printer—within the network itself.

• Intermediate Question

1. What Is Hybrid Routing Protocol?

Ans. hybrid routig protpcol are a combination of distance –vector and link –state routing protocols, and are used to provide a more effcent and scalable routing solution in larger networks.

2.What Are the Range of Ad Values?

Ans. AD value to each source from the range 0-255. In this range a smaller namber.

3.What Is an Autonomous System?

Ans. an autonomous sysem as is a or acollection of network that are all managed and supervised a single entity or organization.

• Advance Question

1.Define Static Routing?

Ans. static routing is a type of network routing technique. static routing is not a routing protocol; instead, it is the manual configuration and selection of a network route, usually managed by the network administrator.

2.Explain Dynamic Routing?

Ans. Dynamic routing is a mechanism through which routing information is exchanged between routers to determine the optimal path between network devices.

Topic: Switching and VLANS

• Beginner Question

1.What is VLAN?

Ans. A virtual LAN is a logical overlay network that groups together a subset of devices that share a physical LAN, isolating the traffic for each group.

2.Which two benefits of creating VLANs?

Ans. VLANs provide anumber of advantages including ease of administration ,confinement of broadcast domains, reduced network traffic and enforcement of security policies.

3.What is Dynamic VLAN?

Ans. dynamic vlan assignment separates and isolates devies into different network segments based on tha device or user authorization and their characteristics.

4.What is Static VLAN?

Ans. A static VLAN is a group of ports designated by the swish as belonging to the same broadcast domain. Using vlan you can group users by logical function instead of physical locaton.

• Intermediate Question

1.What is VLAN and INTERVLAN?

Ans. virtual LANs are networks segments on a switched lan. Inter-vlan routing refers to tha movement of packets across the network between hosts in different network segments.

2.What is trunk port?

Ans. A trunk port allows you to send all those signals for each switch or router across a single trunk link. Ports typically offer higher bandwidth and lower latency than access ports.

• Advance Question

1.How to configure Trunk port?

Ans. To configure an interface to be an access interface, the switchport mode acess interface command is used. configure a trunk interface, the switchport mode trunk interface command is used.

2. How to delete VLAN information from Switch?

Ans. remove VLAN from switch ports

1. Select the configuration > ports> ports page.
2. If not already selected, select the fabric and the switches to edit.
3. Select the ports to configure..
4. Select actions > VLANs >Remove.