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ECA-102: Data Communication

Assignment

Ques-1 What are the different types of networks?

Ans Different types of networks are as follow:

(1) **LAN (Local Area Network)**

- A local area Network (LAN) is usually privately owned and links the devices in a single office, building or campus.

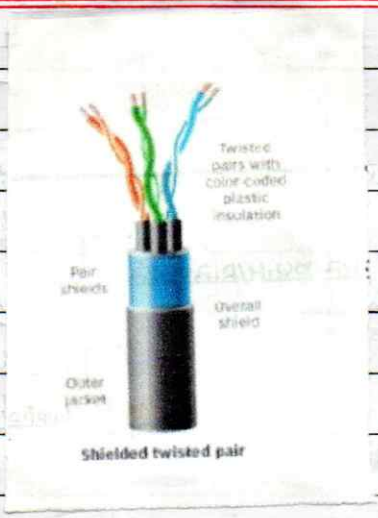
(2) **WAN (Wide Area Network)**

- A wide area network (WAN) provides long-distance transmission of data, image, audio, and video information over large geographic areas that may comprise a country, a continent, or even the whole world.

Ques-2 Explain the Shielded Twisted pair (STP) and Unshielded Twisted pair (UTP)?

Ans-2 **Shielded Twisted pair:**

- is a kind of copper telephone and LAN wiring used in some business installation
- To reduce cross-talk or electromagnetic Induction b/w pairs of wires, two insulated copper wires are twisted around.



Shielded twisted pair

Unshielded Twisted pair :

- Is a type of copper cable widely used for n/w purpose.
- UTP Cable consist of pairs of insulated wires that are twisted together.
- UTP are commonly used in Ethernet n/w for transmitting data signals.

Unshielded twisted pair

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Ques-3 What is different between baseband and broadband transmission?

Ans-3

Baseband Transmission	Broadband Transmission
• transmits digital signal using the physical medium like wires.	• transmits the analog signals using the optical fibres and twisted cables as medium of transmission.
• is termed as bidirectional and is capable of sending digital signals in both direction.	• Is termed as Bidirectional and is capable of sending digital signals in only one direction.
• used Manchester encoding scheme while transmitting the digital signals.	• used Manchester encoding scheme while transmitting the analog signals.
• uses the bus topology as the application.	• uses the tree and bus topology as the application
• Medium: Twisted pair cables, coaxial cables and wires	• Medium: Optical fibres, Coaxial cables and Radio waves.

Ques-4 What is the difference b/w a Hub, modem, router and a Switch?

Ans. Hub: A n/w hub is a node that broadcasts data to every computer or Ethernet based device connected to it.

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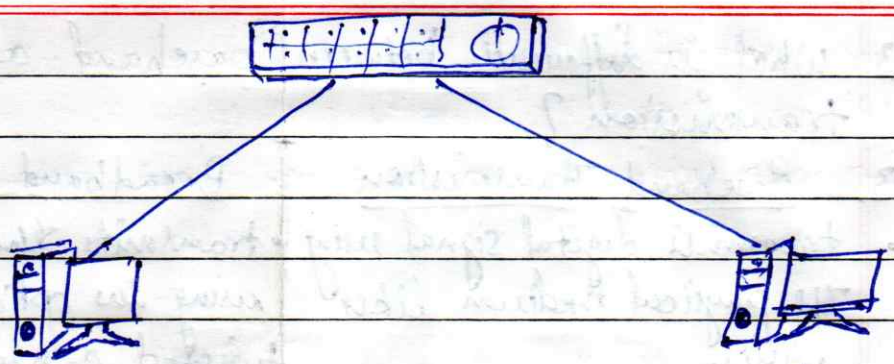
HUB



Modem: A n/w device that connects two or more computers together by means of a telephone line so that information can go from one to the other.

Router: is a device that connects two or more packet-switched n/w or subn/w.
- It serves two primary functions: managing traffics b/w these networks by forwarding data packets to their intended IP Addresses, and allowing multiple devices to use the same internet connection.

Switches: connects devices in a n/w to each other, enabling them to talk by exchanging data packets.
- Switch operates on the data link layer, or layer 2, of the Open Systems Interconnect

(OSI) Model.

Ques-5 When you move the NIC cards from one PC to another PC, does the MAC address gets transferred as well?

Ans-5 Yes, the MAC Address is typically associated with the NIC itself, not with computer.
Therefore, the MAC address gets transfered as well.

Ques-6 When troubleshooting Computer N/w problems, what common hardware-related problems can occur?

Ans-6
- Faulty Cables or connectors.
- N/w Interface Card (NIC) Issue.
- Switch or Router problem.
- Power Supply failures
- Wireless Access point (WAP) Issue.
- Modem Problems.
- Firewall or Security Appliance Issue.

Ques-7 In a n/w that contains two servers and twenty workstations, where is the best place to install an Antivirus program?

Ans-7 In a n/w that contains two servers and twenty workstations, the best place to install the Antivirus program is on the server. Because the server

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is the main port for all the n/w traffic, and so it is more important to ensure that the ~~traffic, and~~ server is free of virus and other risk.

Ques-8: Define Static IP and Dynamic IP? Discuss the Difference btw IPV4 and IPV6.

Ans-8: Static IP: A computer on the internet can have a Static IP Address, which means it stays the same over time.

Dynamic IP: is an IP Address that an ISP lets you use temporarily. If it's not in use, it can be automatically assigned to a different device.

Difference btw IPV4 and IPV6.

IPV4	IPV6
• has 32-bit address length	• has 128 bit address length.
• Supports manual and DHCP Configuration.	• Supports Auto and renumbering Address configuration.

• In IPv4 end to end, connection integrity is Unachievable.	• Connection integrity is Achievable.
• Can generate 4.29×10^9 address space.	• Can produce 3.4×10^{38} address space.
• Security feature is dependent on the application.	• It has inbuilt security feature i.e. IPSEC.
• Address representation is in Decimal.	• Represent Address in Hexadecimal form.
• Supports VLSM (Variable Length Subnet Mask)	• does not support VLSM.
• Ex. of IPv4: 192.168.20.1	• Ex. of IPv6: 2001:0bb0:3238:DFE1:0063:0000:0000:FEFB.

Ques-9 Discuss the TCP/IP Model in Detail.

Ans-9 TCP/IP:

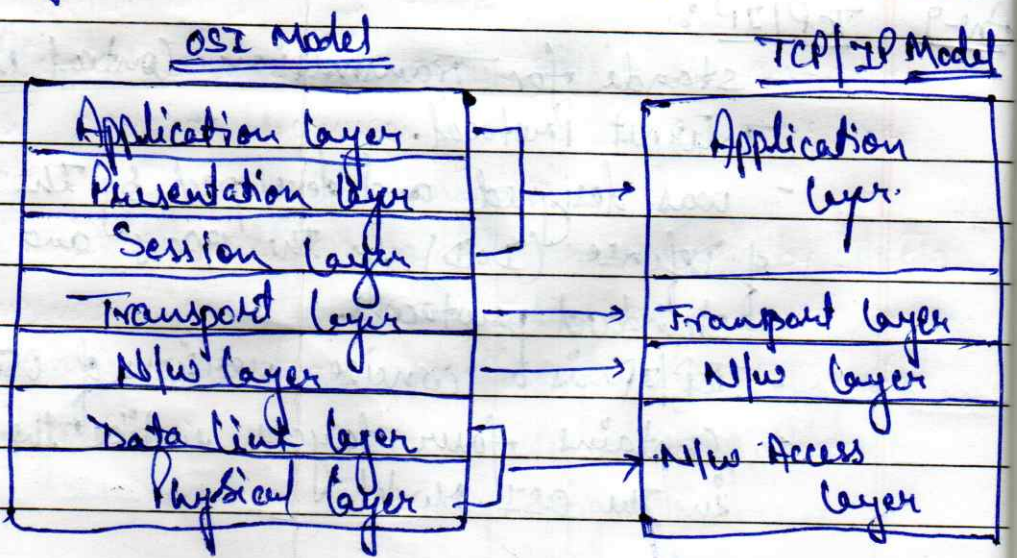
- stands for Transmission Control Protocol/Internet Protocol.
- was designed and developed by the Department of Defense (DoD) in the 1960s and is based on standard protocols.
- TCP/IP is a concise version of OSI Model.
- Contains four layers, unlike the seven layers in the OSI Model.

- The main work of TCP/IP is to transfer the data from one device to another
- Main condition of the process is to make data reliable and accurate so that receiver can receive the same message which is sent by the sender.

Layers of TCP/IP Model:

- Application layer
- Transport layer (TCP/UDP)
- Network / Internet layer (IP)
- Data link layer (MAC)
- Physical layer.

Diagrammatic comparison of TCP/IP Model and OSI Model



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Ques-10 What is Web Browser (Browser)? Give some example of browsers.

Ans-10 Web browser:

- is an application for accessing websites
- when a user request a webpage from a particular webpage, the browser retrieves its files from web servers and display it to user's screen.
- Browsers are used on a range of devices, including desktops, laptops, tablets and Smartphones.

Some Examples of browsers are Google Chrome, Safari, Mozilla firefox, Internet Explorer.

Ques-11 What is Search Engine? Give Example.

Ans-11 A Search Engine is a Software program that helps people find the information they are looking for only using keywords or phrases.
Search engines are able to return results quickly.
Examples are Google, Bing, Yahoo!, Baidu, Yandex, DuckDuckGo etc.

Ques-12 What is the internet and WWW? What are the uses of Internet in our daily life.?

Ans-12 Internet: is a global system of billion of computers

and other electronic device.
- With the Internet, it is possible to access almost any information, communicate with anyone else in the world.

WWW:
- Stands for World Wide Web.
- Technically the World Wide web can be defined as 'All the resources and users on the Internet that are using the Hypertext transfer Protocol (HTTP)".
- The WWW or web, is a way of accessing informa over the medium of the Internet.

Ques-13 What is an Internet service Provider? Give Some example of ISP in India.

Ans-13 Internet Service Provider (ISP) - is an organizati that provide services for accessing, using, or participating in the Internet.
- Internet service typically provided by ISPs include Internet access, Internet transit, Domain name registration, web hosting and Usenet Services.

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Types of ISPs:

- Dial up services
- Broadband high-speed internet
- Digital line Subscribers (DSL)

Some Examples of ISPs:

Reliance Jio, Bharti Airtel Ltd., Vodafone/Idea, BSNL, Atria Convergence Technologies Pvt.

Ques-15 How do we view my Internet browser's history?

Ans-15
- Open Internet browser, on which you want to view your history.
- Click on the Menu list or ⋮ Icon, near search toolbar.
- Go to History, and Click.
- Now, you will be able to view all your browsing history till date.