

Data communication and computer networking

What is data communication?

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Explain the following components of data communication

Message

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Sending device

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Receiving device

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Transmission media

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Protocol

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Write short notes on the following electronic communication tools and give two advantages and two disadvantages.

Landline telephone

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Cell phone

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Smart phone

Fax

Why use electronic communication tools? State four reasons

Write down any four limitations of electronic communication tools

Mention four advantages and four disadvantages of manual communication tools.



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Define the term transmission media

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Explain two categories of transmission media and give three examples for each category.

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What do TPC stand for?

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What is TPC?

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Mention two applications of TPCs.

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Differentiate between STP and UTP

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Describe coaxial cables



Give three advantages and three disadvantages of coaxial cables.

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Identify two applications of coaxial cables

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What is a fiber optic cable?

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Mention any three advantages and three disadvantages of fiber optic cables.

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Suggest any three applications of fiber optic cables

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Explain the following wireless transmission media and give advantages and disadvantages where possible.

Microwaves

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Radio waves

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Infrared light

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Satellite transmission

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Bluetooth

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Explain the following services offered by data communication tools and give three advantages and three disadvantages for each where possible.

Instant messaging

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Groupware

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Fax

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Telecommuting

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Electronic data interchange

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Global positioning systems

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Chat rooms

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Voice over internet protocol (internet telephony)

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What is the difference between a computer network and computer networking?

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Suggest five requirements needed to setup a computer network.

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Explain four advantages of networking computers

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Identify three disadvantages of networking computers

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List down any six factors that affect the transmission rate of a computer network

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What do the following abbreviations stand for?

LAN

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WAN

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MAN

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What is a LAN?

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Differentiate between a LAN and a WLAN

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Suggest two advantages and two disadvantages of a WLAN

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What is WAP?

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Suggest any four components of a LAN

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Give four factors that affect LAN performance

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State three functions of a network operating system

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Write down three factors to consider when setting up a computer network

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Give three examples of resources that can be shared across a computer network

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What is a MAN?

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What is a WAN?

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Write the following abbreviations in full.

VHF

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UHF

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Differentiate between peer to peer and client server network models

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State two advantages and two disadvantages of a peer to peer network model

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Mention two advantages and two disadvantages of a client server network model

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Differentiate between an intranet and an extranet

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List down two advantages and two disadvantages of an intranet

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State two advantages and two disadvantages of an extranet

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Define a protocol as used under computer networking

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Give three functions of protocols in computer networking

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Define handshaking

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Describe the Ethernet protocol

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Write CSMA/CD in full. What does it mean?

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Write down two advantages of Ethernet

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What is token ring?

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Differentiate between TCP and IP

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Define the term network topology

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List down seven considerations when choosing a network topology

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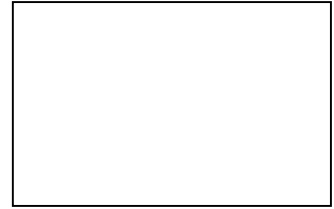
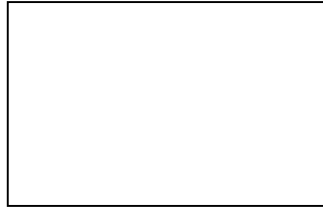
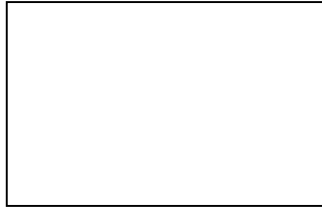
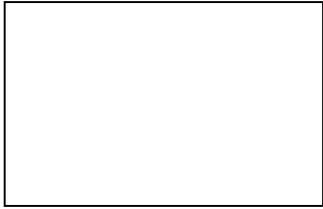
With illustrations, explain the following network topologies.

Star topology

ring topology

bus topology

hybrid topology



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Explain the following devices used to connect computers to a computer network.

Repeater

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Bridge

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Router

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Gateway

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Hub

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Switch

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Differentiate between a node and a packet

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Differentiate a communication channel from a signal

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Differentiate between a digital signal and an analogue signal

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List down any two advantages of digital signals

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Differentiate a workstation/client from a server?

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Write the following abbreviations in full

Hz

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cps

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bps

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kbps

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Differentiate between serial transmission and parallel transmission

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Define bandwidth as used in computer networking

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Differentiate between baud and baud rate

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What is data transfer rate?

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What is the difference between baseband media and broadband media?

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What do the following terms mean? State two applications for each term

Simplex transmission

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Half duplex transmission

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Full duplex transmission

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Differentiate between asynchronous transmission and synchronous transmission

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Differentiate between point to point transmission and multipoint transmission

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Define packet switching

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State three benefits of packet switching

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What does the OSI model mean?



Explain the seven layers of the OSI model?

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Suggest any four examples of communication devices

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Mention four factors that affect transmission media

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Suggest three situations in which wireless media can be used.

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List down four characteristics of WANs

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