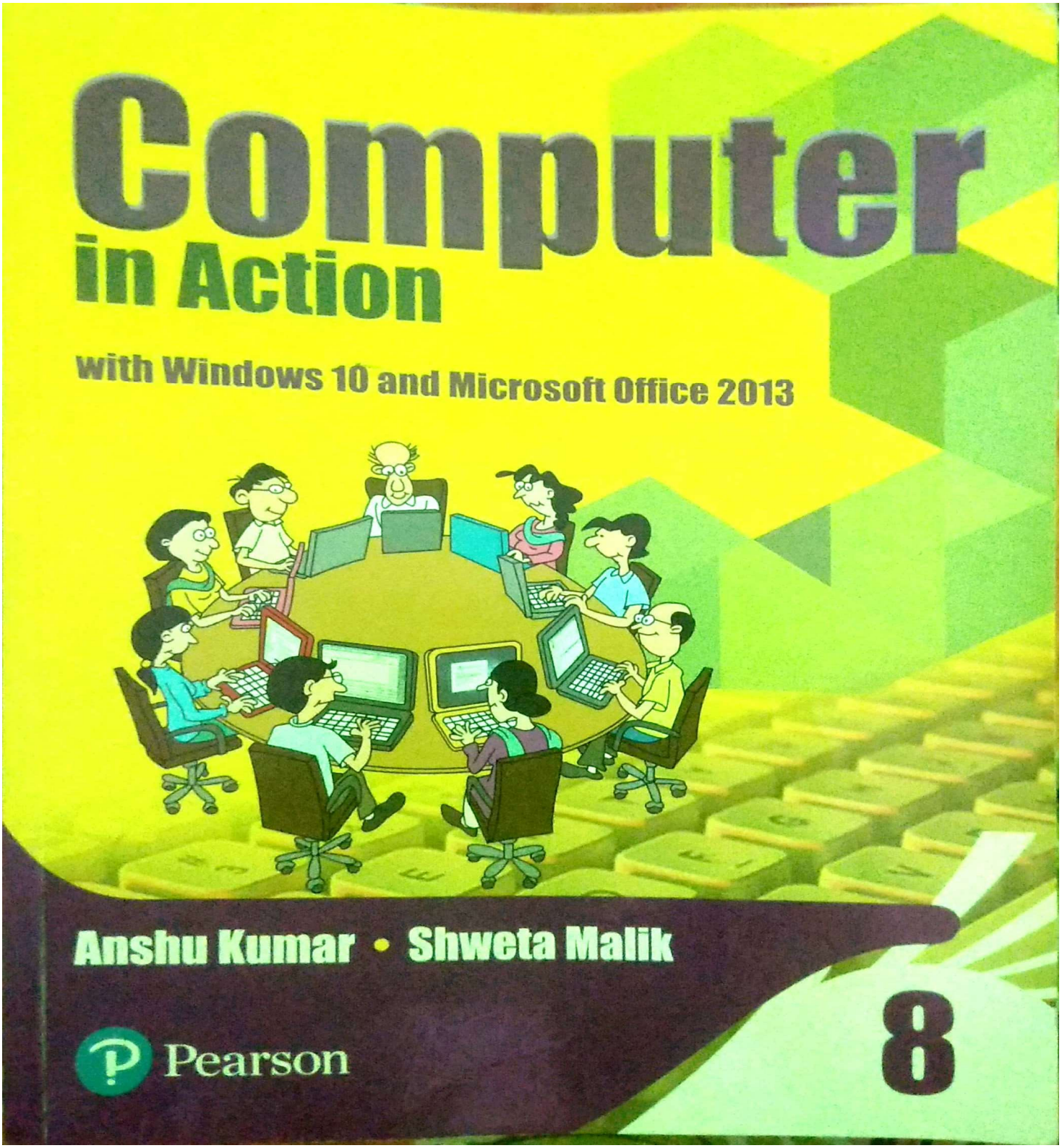
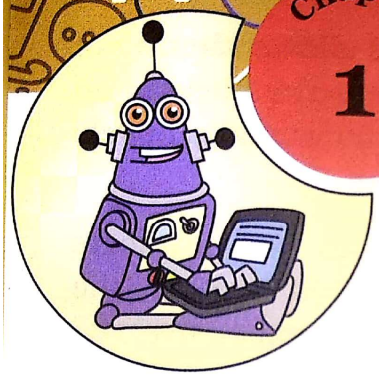
R.S.M. Public School, Supaul (Bihar)

Class – Eighth **Subject-> Computer**

Questions & Answers of Chapter 1st

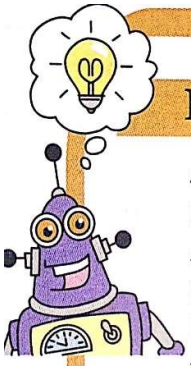
By:- Ankit Sultania





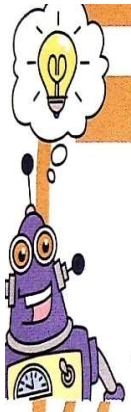
Chapter 1

Networking Concepts



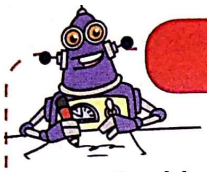
Did You Know?

ARPANET (Advanced Research Projects Agency Network) was a network set up by the US Department of Defense that later developed into the Internet.



Did You Know?

- Coaxial cable was invented by English engineer and mathematician **Oliver Heaviside.**
- Twisted pair cable was invented by **Alexander Graham Bell.**
- **Narinder Singh Kapany**, an Indian-born American Sikh physicist is known as **'Father of Fibre Optics'.**



Practice Zone

Fill in the blanks.

1. A network that is limited to a small geographical area such as a laboratory is known as a _____.
2. The Internet is an example of _____.
3. Central node dependency problem arises in networks with _____ topology.
4. A device that can convert digital signals into analog form and vice versa is known as a _____.
5. A device that is used to connect computers in a network is called _____.
6. A transmission medium that transmits data in the form of light signals is referred to as _____.
7. The data that is transmitted across the Internet in the form of little bundles is called _____.
8. WLAN stands for _____.

Answers of Practice Zone:

(1)- LAN **(2)-** Network or WAN **(3)-** Star **(4)-** Modem
(5)- Network Device **(6)-** Optical Fibre Cable **(7)-** Packets
(8)- Wireless Local Area Network

A. Choose the correct answer.

1. What is the importance of a computer network?
   a) It allows sharing of resources.
   b) It is an effective communication medium.
   c) It lets users share files.
   d) All of the above
2. A network that spans countries and continents is known as
   a) LAN. b) MAN. c) WAN. d) PAN.
3. A device used to connect computers in a network is referred to as
   a) a firewall. b) CPU. c) HTTP. d) a switch.
4. A topology in which every computer is connected to every other computer is called
   a) ring topology. b) mesh topology.
   c) star topology. d) bus topology.
5. It transmits data in the form of light rather than electronic signals.
   a) Coaxial cable b) Bluetooth
   c) Optical fibre cable d) Twisted pair cable
6. A computer network organised around a person for communication between devices such as phones and personal digital assistants is called
   a) PAN. b) LAN. c) MAN. d) WAN.
7. A device used to connect two or more networks.
   a) NIC b) Modem c) Router d) None of these

Answers of Assessment Zone:

A. Choose the correct answer(Answers)

(1)- (d) All of the above **(2)-** (c) WAN **(3)-** (d) Switch

(4)- (b) Mesh topology **(5)-** (c) Optical fibre cable **(6)-** (a) PAN

(7)- (c) Router

B. Fill in the blanks using the words given in the box.

MAN	TCP/IP	Topology	Bluetooth	Firewall	Infrared
Wi-Fi	Ring	modulator-demodulator	Protocol	CAN	

a) _____ refers to the layout pattern in which the computers are connected to each other in a network.

b) A _____ is formed when the computers are connected in a neighbourhood area.

c) A _____ is used to prevent unauthorised access to a network.

d) Modem stands for _____.

e) _____ is a set of rules used by computers on the network to communicate with each other.

f) _____ and _____ technologies make use of radio waves.

g) _____ waves are used for communication between a TV set and its remote control.

h) _____ protocol is used to send data in the form of packets on the Internet.

i) In _____ topology, each computer is connected to two other computers so as to form a closed structure and the breakdown of any one computer can disable the entire system.

j) A _____ is a computer network that connects two or more LANs but is not as large as a MAN or WAN.

C. Answer the following questions.

a) Define the term 'computer network'. What are its advantages?

b) State the types of computer networks based on the geographical area covered by them.

c) Write a note on twisted pair and coaxial cables.

d) Give the advantages of optical fibre cables.

e) What is a bus topology?

f) How is a hub different from a switch?

g) Discuss some common threats to network security.

h) What is a firewall?

i) How is microwave transmission different from radiowave transmission?

B. Fill in the blanks(Answers)

(a)- Topology (b)- MAN (c)- Firewall

(d)- Modulator-Demodulator (e)- Protocol

(f)- Bluetooth and Wi-Fi (g)- Infrared

(h)- TCP/IP (i)- Ring (j)- CAN

C. Answer the following questions(Answers)

(a) Ans.-> A **computer network** consists of two or more computers that are linked in order to share resources such as printers, exchange files and allow communication.

Some of the advantages of computer networks are:

- **Resource Sharing:** All computers in a network can share resources such as printers, fax machines, modems and scanners.
- **File Sharing and Remote Database Access:** A computer network allows sharing of files and access to remote database. We can easily access the files stored on various computers on a network. Also, networking allows many people to work simultaneously on the data stored in a database.
- **Ease of Communication:** Computer networks allow people to communicate through emails and instant messaging facilities. This makes the transmission of information easier, more efficient and less expensive.

(b) Ans.-> The following are the types of networks based on the geographical area covered or scale of the network.

- **Personal Area Network (PAN):** A PAN is a computer network organised around a person. It is used for communication between devices such as phones, personal digital assistants, printers and laptops that are in close proximity.
- **Local Area Network (LAN):** A LAN is a computer network that is limited to a local area such as a laboratory, a school or an office building.
- **Campus Area Network (CAN):** A CAN is a computer network that connects multiple local area networks (LAN) in a limited geographical area.
- **Metropolitan Area Network (MAN):** A MAN is a computer network that usually covers a larger area than a LAN.
- **Wide Area Network (WAN):** A WAN is a computer network that spans a wide geographical area. A WAN may be spread across cities, countries and continents.

(c) Ans.-> **Twisted Pair Cable:** It consists of a pair of insulated wires twisted together. The use of two wires twisted around each other helps to reduce disturbances in the signals.
The twisted pair cable is often used in two or more pairs, all within a single cable. Twisted pair cabling comes in two varieties—shielded (Shielded Twisted Pair or STP) and unshielded (Unshielded Twisted Pair or UTP). UTP cable is the most commonly used cable in computer networking.
Coaxial Cable (coax): Coaxial cable is an electrical cable with a conductor at its centre. The inner conductor is surrounded by a tubular insulating layer. The insulating layer is surrounded by a conductive layer called the shield, which is finally covered with a thin insulating layer on the outside.

(d) Ans.-> **Optical fibre cable** consists of a central glass core surrounded by several layers of protective material. It transmits data in the form of light rather than electronic signals, thus eliminating the problem of electrical interference. Fibre optic cable is expensive as compared to coaxial and twisted pair cables but can transmit signals over much longer distances. It also has the capability to carry data at a very high speed.

(e) Ans.-> **Bus Topology:** In bus topology, all the computers are connected to a single cable called the bus. The transmission of data from any computer travels through the length of the bus in both the directions and can be received by all other computers on the network. If the address of a computer is that of the intended recipient, it accepts the data; otherwise, the data is rejected. The advantage of the bus topology is that it is quite easy to set up. However, a network cannot function if there are breaks in the bus.

(f) Ans.-> In a hub, when one computer sends data on the network, the hub simply forwards the packets to all the other computers connected to it. **But**, a switch is a more intelligent device than a hub. Unlike a hub, the switch sends the incoming data to the desired destination only.

(g) Ans.-> some of the common threats to network security are:

- **Virus:** A computer virus spreads itself from one computer to another and interferes with the normal operations of a computer. Viruses attach themselves to any type of file and spread when these infected files are copied to other computers. People unknowingly spread a computer virus by sharing infected files or sending emails with viruses as attachments.
- **Worm:** A worm is a computer program that uses computer networks to send copies of itself to other computers on a network. Worms can cause severe harm to a computer network such as blocking the network and reducing the speed of the network.
- **Trojan Horse:** A computer program that appears to be a useful software but actually causes damage once installed or executed onto your computer system is known as a Trojan horse or a Trojan. After getting installed, it allows unauthorised access to the computer. Trojan horses are very dangerous as they allow your computer to be remotely controlled by someone else and can cause loss of personal and confidential information.
- **Data Theft:** It is a very serious problem for computer networks. People break into computer networks to either disrupt their functioning or to steal confidential information. Hackers are the computer experts who can break into computer systems and networks.

(h) Ans.-> **Firewall:** A firewall is used to prevent unauthorised access to a computer network. A firewall can be implemented as a software, a hardware or a combination of both. All data or messages entering or leaving a computer network pass through a firewall. A firewall examines each message and blocks those that do not meet the specified security criteria.

(i) Ans.-> **Microwave communications** are unidirectional. They can be used for terrestrial communication or for satellite communication.
Microwave propagation is line-of-sight communication. So, when used for terrestrial communication, the towers with antennas mounted on them need to be in direct sight of each other.
Radiowave communications are omnidirectional, which means that they travel in all directions from the source, so that the transmitter and receiver do not have to be carefully aligned physically.
However, at all frequencies, radio waves are subject to interference from motors and other electrical equipment.

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