

**Cloud Computing**

This is an emerging area of demand based resource sharing, resulting into drastic saving of energy and cost. This is also referred to as 'Green IT'.

You can explore more about Cloud Computing on the internet.

EXERCISES**MULTIPLE CHOICE QUESTIONS**

- Which of the following topologies is a combination of more than one topologies?
 - Bus
 - Tree
 - Star
 - None of these
- Which of the following is used for wireless communication?
 - Optical Fiber
 - UTP cable
 - Radio Waves
 - Coaxial Cable
- Which of the following is not a transmission medium?
 - Telephone Network
 - Coaxial Cable
 - Modem
 - Microwaves
- IP addresses of two computers on a network:
 - Can be the same
 - Cannot be the same
 - Are not defined
 - Must match with a third computer
- Bluetooth can be used for
 - Long distance communication
 - Short distance communication
 - In mobile phones only
 - None of the above
- Micro waves are
 - Uni directional
 - Omni directional
 - Guided media
 - Not used for communication.





7. Snooping is
- a. A threat to data security
 - b. Not a threat to data security
 - c. Good for laptops
 - d. A topology
8. A repeater
- a. Regenerates the received signal
 - b. Destroys the received signal
 - c. Can be used as a hub
 - d. None of the above
9. Satellite links are generally used for
- a. PANs
 - b. LANs
 - c. MANs
 - d. All of the above
10. A domain name maps to
- a. A URL
 - b. An IP address
 - c. A website
 - d. All of the above

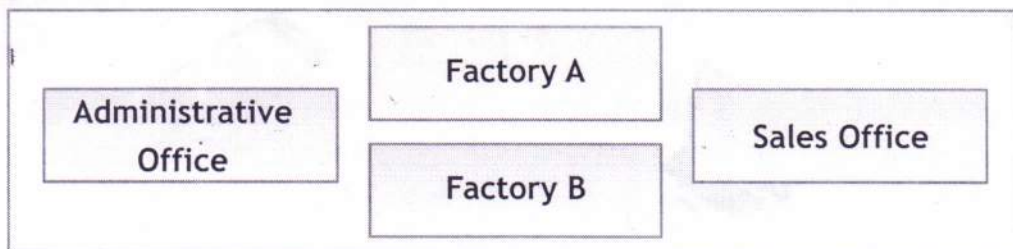
ANSWER THE FOLLOWING QUESTIONS

1. What is a computer network? What are its advantages?
2. What is meant by communication channels? Give two examples of guided media and two examples of unguided media.
3. Which communication channel(s) is/are suitable in each of the following situations:
 - a. Setting up a LAN
 - b. Transfer of data from a laptop to a mobile phone.
 - c. Transfer of data from one mobile phone to another.
 - d. Creating a remote control that can control multiple devices in a home.
 - e. Very fast communication between two offices in two different countries.
 - f. Communication in a hilly area
 - g. Communication within a city and its vicinity where cost of cabling is too high.
4. Why is a switch called an intelligent hub?





5. When is a repeater used in a computer network?
6. Diagrammatically show how would you connect 6 PCs, 1 server, 1 printer, and 2 scanners in
 - a. Star topology
 - b. Bus topology
7. Two engineers in the same room have connected their Palm-tops using bluetooth for working on a Group presentation. Out of the following, what kind of Network have they formed?
LAN, MAN, PAN, WAN
8. What is a MAC address? What is the difference between a MAC address and an IP address?
9. Give some examples of domain names and URLs. How is a domain name different from a URL?
10. What is domain name resolution?
11. Define Network security? What kind of attacks can be made on data and computer networks?
12. List some methods which are used for network security.
13. Differentiate (with examples wherever possible) between :
 - a. LAN and MAN
 - b. MAN and WAN
 - c. Hub and Switch
 - d. Guided and Unguided media
14. Write one advantage of star topology over bus topology and one advantage of bus topology over star topology.
15. Ishika Industries has set up its new production unit and sales office at Ranchi. The company compound has 4 buildings as shown in the diagram below:





Distances between these buildings are as follows:

Administrative Office to Factory A	150 m
Factory A to Factory B	50 m
Factory B to Sales Office	100m
Sales Office to Administrative office	200m
Administrative Office to Factory B	125 m

Number of Computers in each of the buildings is follows:

Administrative Office	15
Factory A	25
Factory B	18
Sales Office	15

1. Suggest a cable layout of connections between the buildings so that each building is directly connected to Administrative Office.
2. Suggest the most suitable place (i.e. building) to house the server of this production unit with a suitable reason.
3. Suggest the placement of the following devices with justification:
 - (i) Repeater
 - (ii) Hub/Switch
4. The Administrative office of this unit is to be linked with the head office situated in Patiala (Punjab). What will be the most economical way to do this? Justify your answer.





LAB EXERCISES

1. Find the IP addresses of at least five computers in your school.
2. Find the MAC addresses of at least 2 computers in your lab. Then verify their manufacturer's name on the net.
3. Find the layout of LAN in your school's labs. If you think some modifications can be done in the layout, note these down in your notebook.
4. Find the name of Internet Service Provider of your school.
5. Find the IP address of your school's web site.

TEAM BASED TIME BOUND EXERCISES

(Team size recommended: 3 students each team)

1. A school building is divided into 4 blocks (A, B, C, and D). Each block is at a distance of 25m from its adjacent blocks. Each block has 1 computer lab with 15 computers each. Each block also has some other rooms (maximum 10) with 1 computer each. The school has only one internet connection. The computer network in the school has to be restructured with the following goals in mind:
 - Each lab has to have an independent LAN.
 - All the computers in the school should have internet access. (The school does not want to have any other new internet connection.)
 - For internet access a computer should be dependent only on one point and not on multiple points. It means that if the internet connection is active, any computer should be able to access it directly irrespective of whether some other computer in the school is ON or OFF.
 - Any two computers in the school should be able to communicate with each other irrespective of whether any other computer in the school is ON or OFF.

The job of each team is to design a layout for this new network structure. Each team has to specify

- The layout of the network structure diagrammatically.

