

Worksheet: Case Study

Based Questions on Computer Networking

Class: XII Subject: Computer Science Topic: Computer Networking

Q1.The management of Star Education Network Pvt. Ltd. has set up its offices in three different cities. The details are as follows:

Location	Distance from Central Office	No. of Computers
Delhi (Central Office)	—	100
Mumbai	1300 km	60
Jaipur	250 km	40

1. Suggest the most suitable type of network (LAN/MAN/WAN) for connecting these offices.
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2. Name the network device required to connect different networks, such as LANs and WANs.
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3. Which transmission medium will be most suitable for connecting Delhi and Mumbai offices?
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4. Suggest a suitable topology for Delhi office having 100 computers.
.....
5. Which protocol is used to transfer web pages over the internet?
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Q2.TechFusion Ltd. has offices in Chennai, Hyderabad, and Kolkata. The company wants to set up a network so employees can share data, printers, and internet access securely.

6. Which type of network should be established within each office building?

7. Which device should be installed in each office to connect multiple computers in a LAN?
8. To connect all offices together, which network technology should be used?
9. Suggest any two advantages of networking in an organization.
10. Name one network security measure to prevent unauthorized access.

Q3. The National University Network wants to connect its Administrative Block, Examination Block, and Library. The distances between the buildings are:

- Administrative–Examination: 120 m
- Administrative–Library: 80 m
- Examination–Library: 70 m

11. Which network device should be used to connect computers within each block?

12. Which type of network (LAN, MAN, WAN) will be formed within the campus?

13. Suggest a suitable topology for connecting all blocks efficiently.

Ans

14. Name any two networking cables that could be used.

Ans-

15. Which software is used to access websites on the Internet?

Ans-

Q4. CyberMart Pvt. Ltd. has four departments: Sales, Accounts, HR, and IT. The network administrator has to ensure smooth communication and data sharing among them.

Ans-

16. Which topology should be used if all departments need to be connected to a central switch?

Ans-

17. Which protocol is responsible for assigning IP addresses automatically in a network?

Ans-

18. Which device will connect the company's LAN to the Internet?

Ana-

19. What is the purpose of a firewall in networking?

Ans-

20. Identify the type of network used within the office premises.

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Case Study 1 – Star Education Network Pvt. Ltd.

Question	Answer
Q1.1	WAN (Wide Area Network) – because offices are in different cities far apart.
Q1.2	Router – used to connect different networks such as LANs and WANs.
Q1.3	Optical Fibre Cable – provides high speed and long-distance data transmission.
Q1.4	Star Topology – efficient and easy to manage for large networks.
Q1.5	HTTP (HyperText Transfer Protocol) – used to transfer web pages on the Internet.

Case Study 2 – TechFusion Ltd.

Question	Answer
Q2.1	LAN (Local Area Network) – suitable for networking within a single office building.
Q2.2	Switch or Hub – connects multiple computers in a LAN.
Q2.3	WAN (Wide Area Network) – connects offices in different cities.
Q2.4	Advantages: (i) Resource sharing (ii) Easy communication between employees.
Q2.5	Firewall or Password Protection – prevents unauthorized access.

Case Study 3 – National University Network

Question	Answer
Q3.1	Switch – connects computers within each block efficiently.
Q3.2	LAN (Local Area Network) – since the network is within a campus area.
Q3.3	Star Topology – allows easy addition/removal of nodes and centralized control.
Q3.4	Twisted Pair Cable or Optical Fibre Cable – commonly used for networking.
Q3.5	Web Browser (e.g., Chrome, Firefox) – software used to access websites.

Case Study 4 – CyberMart Pvt. Ltd.

Question

Answer

- Q4.1 **Star Topology** – connects all departments to a central switch.
- Q4.2 **DHCP (Dynamic Host Configuration Protocol)** – assigns IP addresses automatically.
- Q4.3 **Modem** – connects LAN to the Internet through ISP.
- Q4.4 **Firewall** – protects network by preventing unauthorized access and filtering data.
- Q4.5 **LAN (Local Area Network)** – used within a single office building.
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