

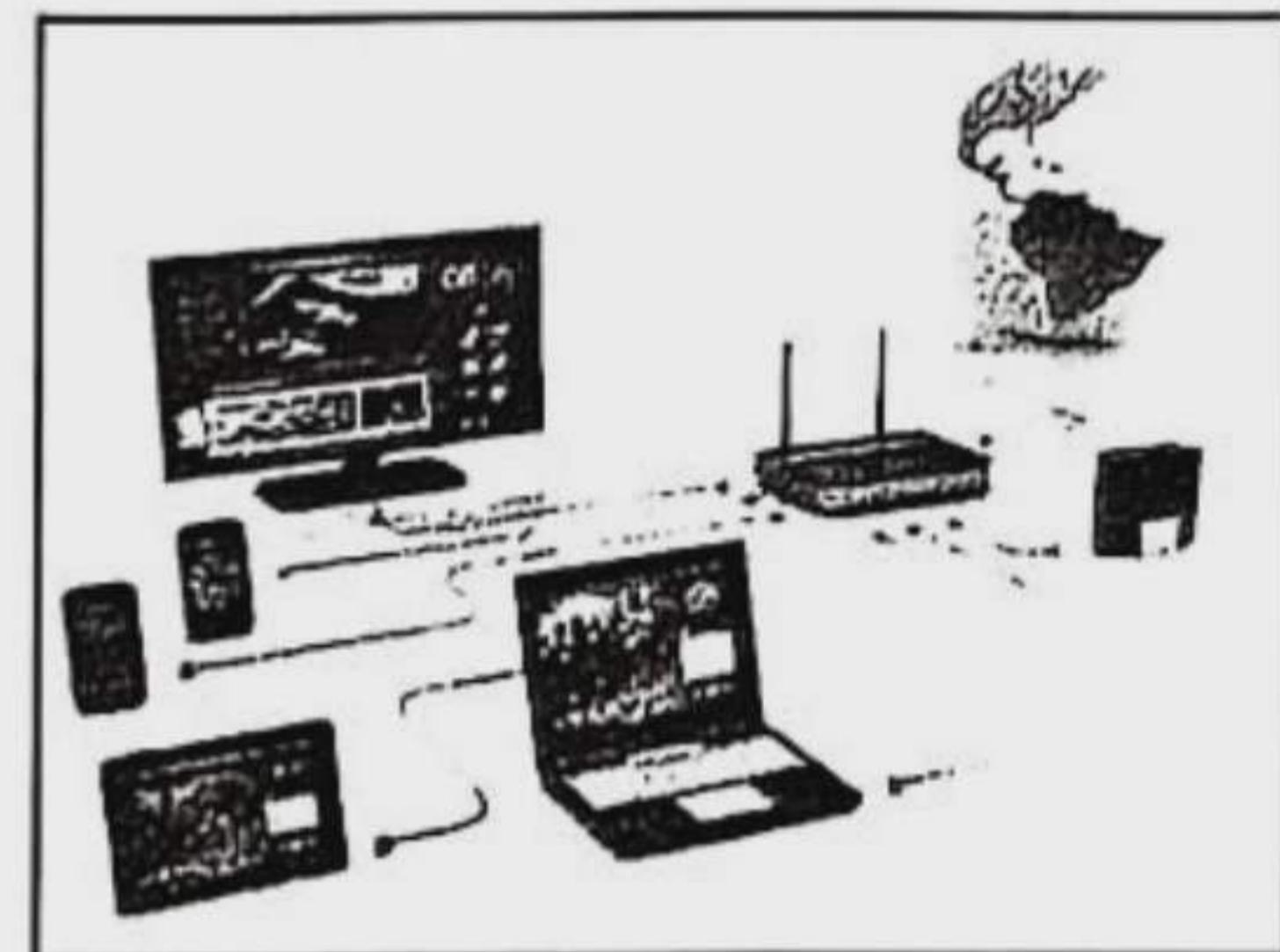
Computer Network

Contents for Discussion

- The Idea of Network • Topology • Use of Network • Network Related Devices • Some More Network Related Devices • Satellite and Optical Fibre.

 **Learning Outcomes :** After studying this chapter, I will be able to—

- Explain the idea of computer network.
- Explain different network related devices.



Practice



**Multiple Choice and General Q/A following
100% accurate format for best prep.**

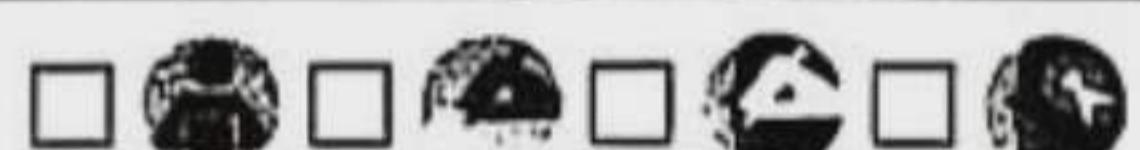
Dear learners, the Q/A of this chapter have been divided into Exercises, MCQs, Short answer questions and Exercise-based tasks in light of the learning outcomes. Practice the questions well to ensure the best preparation in the exam.



Textual Q/A



Let's learn the textbook Q/A



MCQs with Answers



1. In which topology is a computer connected to two more computers?
 a) Mesh topology b) Ring topology
 b) Star topology d) Tree topology
2. In which topology is every computer connected to each other?
 a) Mesh topology b) Ring topology
 a) Star topology d) Tree topology
3. What is the asset of the new world?
 a) Information b) Data
 a) Computer d) The Internet
4. The work of network interface card is—.
 i. Giving information to clients after receiving it from the media;
 ii. Giving information to network after receiving from clients;
 iii. Imparting numerous services to computer;
 Which one is correct?
 a) a & ii b) i & iii c) ii & iii d) i, ii & iii
5. Read the text below, and answer the question nos. 5 & 6 :

Mr. Karim preserves scanned copies of his academic certificates, National ID card, driving licence etc. in his drop box. Once he was attending a seminar in London. He got a chance to pursue higher education while there. He had to submit certain certificates, and he was able to do it very easily.

5. How did Mr Karim get the certificates?

- a) Through postal delivery b) Through fax
- c) By using computer d) By using the Internet

6. The advantage of using dropbox is—.

- i. that it can be accessed anywhere;
- ii. that information is safe and secured here;
- iii. that it can be carried on CD;

Which one is correct?

- a) a & ii b) i & iii c) ii & iii d) i, ii & iii

Short Q/A



Question 7. Recommend a topology for creating a network for ten computers and a printer in your school and give logical reasons for your answer.

Ans. To create a network for ten computers and one printer in my school, we need a topology that allows all ten computers to print to the single printer. This essentially means creating a Local Area Network (LAN). The most suitable topology for this is the Star topology.

In a Star topology, a central hub is used to connect all ten computers and the printer. When a computer sends data to another computer, it goes through the hub. Similarly, when any computer sends a print command, it goes through the central hub to the printer. This allows all computers to use the single printer.

If a computer malfunctions in this setup, it doesn't affect the rest of the network. The faulty computer can be easily removed. If the printer malfunctions, it can also be replaced with a new one connected to the Star topology network. Therefore, implementing such a network in the school would greatly benefit both students and teachers.

Question 8. Describe how a router works.

Ans. The word "Router" comes from the word "Route." A router is an intelligent device, a combination of hardware and software, that facilitates data transfer between two or more networks using the same protocol. A network is formed by a combination of hubs and switches. A router resides between two different networks, or even more.

It works by sending data received from one network to another network using the shortest possible path. It delivers data packets from the source computer to the destination computer. For example, if you send a picture to a friend in Australia via email, the picture is divided into

several data packets that reach your friend's computer through the internet. Each data packet includes the destination address. When a data packet reaches a router, the router determines the next best path for the data to reach its destination quickly and efficiently.

Question 9. State the process of transferring data through optical fibre.

Ans. Optical fiber is a very powerful medium for transmitting information. It is a very thin strand of glass. Data is transferred through optical fibre in the form of light signals. Light signals are sent through the optical fibre following the principle of total internal reflection.

First, the electrical signal is converted into a light signal. Then, the light signal is sent through the optical fibre. At the other end, the light signal is converted back into an electrical signal. This is how signals or data can be sent through optical fiber. A large amount of signals or data can be sent through optical fibre. It is possible to send hundreds of thousands of telephone calls simultaneously through a single optical fibre.



Multiple Choice Q/A



Designed as per topic

- The Idea of Network** → Textbook Page 21
- Which device receives information from the server? (Knowledge) [DB '19]
 - (A) Router
 - (B) Switch
 - (C) Client
 - (D) Printer
 - Who addresses computer program as virus at first? (Knowledge) [RB '19]
 - (A) Fredrick B Cohen
 - (B) Charles Babbage
 - (C) Von Neumann
 - (D) Elk Cloner
 - What is called internet based crime? (Knowledge) [RB '19]
 - (A) Cyber hack
 - (B) Cyber net
 - (C) Cyber line
 - (D) Cyber crime
 - The main objective of network is resource— (Knowledge) [JB '19]
 - (A) receiving
 - (B) giving
 - (C) Sharing
 - (D) trading
 - Al-Amin is a student. He enters Khan Academy website to research about education. Which efficiency is required to know Al-Amin to do that works? (Application) [JB '19]
 - (A) Programming
 - (B) Browsing
 - (C) Computer graphics
 - (D) Web design
 - What is the full form of 'NIC'? (Knowledge) [CB '19, JB '19, RB '18]
 - (A) Network Interface Card
 - (B) Network Interactive Card
 - (C) Network International Card
 - (D) Network Interview Card

- What is the name of 'NIC'? (Knowledge) [CtgB '19]
 - (A) Adopter
 - (B) Media player
 - (C) Server
 - (D) Resource
- The functions of network interface card are— (Higher Ability) [SB '19]
 - i. Giving information to clients receiving from media
 - ii. Giving information to network receiving from clients
 - iii. Imparting a number of services to computer

Which one is correct?

 - (A) (i) & (ii)
 - (B) (i) & (iii)
 - (C) (ii) & (iii)
 - (D) (i), (ii) & (iii)
- How many server may have of a network? (Knowledge) [RB '18]
 - (A) One
 - (B) Two
 - (C) Three
 - (D) Many
- Search Engine is—. (Higher Ability) [RB '18]
 - i. Pipilika
 - ii. Google
 - iii. Yahoo

Which one is correct?

 - (A) (i) & (ii)
 - (B) (i) & (iii)
 - (C) (ii) & (iii)
 - (D) (i), (ii) & (iii)
- Which one of the following is related to 'HTTP'? (Knowledge) [RB '18]
 - (A) E-mail
 - (B) Outsourcing
 - (C) Facebook
 - (D) Internet
- Which one of the following is the asset of recent world? (Knowledge) [RB '18, JB '18]
 - (A) Information
 - (B) Data
 - (C) Computer
 - (D) Internet

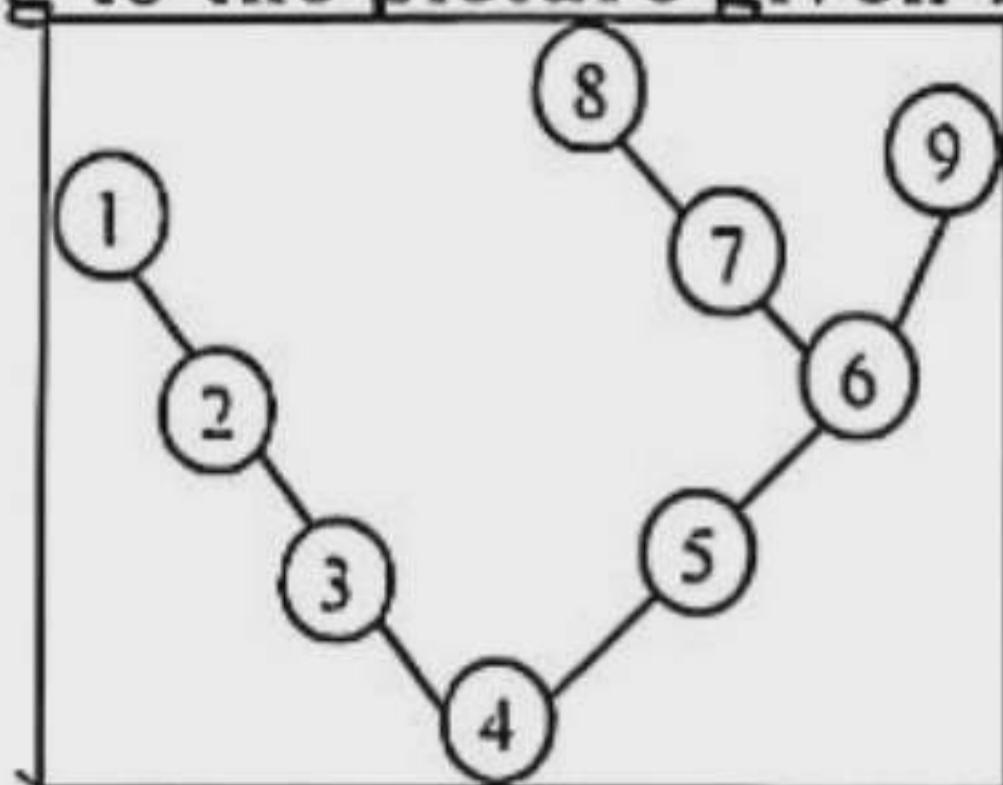
13. Which one is Media? (Knowledge) [JB '18]
 ① Router ⑤ Modem
 ② NIC ⑥ Optical fiber
14. What is the name of search engine invented in our country? (Knowledge) [JB '18]
 ③ Google ⑦ Pipilika
 ④ Khan Academy ⑧ Banglanet
15. What is the wealth of the new world? (Knowledge) [CB '18]
 ① Information ⑤ Data
 ② Computer ⑥ Internet
16. Which is the Bengali Search Engine? (Knowledge) [CB '18]
 ③ Google ⑦ Yahoo
 ④ Bing ⑧ Pipilika
17. What is the full form of http? (Knowledge) [CtgB '18]
 ① hyper test transfer protocol
 ② hyper text transfer protocol
 ③ high text transfer protocol
 ④ high test transfer protocol
18. The thing used to connect the many computer is called —. (Knowledge) [BB '18]
 ① server ⑤ client
 ② media ⑥ adapter
19. What is Information Sharing? (Knowledge) [DjB '18]
 ① Preserving information
 ② Giving information
 ③ Exchanging information
 ④ Information storage
20. Which one is related to 'NIC'? (Knowledge) [DjB '18]
 ① User ⑤ Resource
 ② Network ⑥ Hub
21. How many computer needs at least to establish a computer Network? (Knowledge) [DjB '18]
 ① 1 ⑤ 2
 ② 3 ⑥ Many
22. Which one is Bangla Search Engine? (Knowledge) [DjB '18]
 ① Bing ⑤ Google
 ② Yahoo ⑥ Pipilika
23. Which of the following is the contribution of information technology? (Knowledge) [DB; CB; BB '17]
 ① People ⑤ Society
 ② Civilization ⑥ Network
24. What is called the main computer of Network? (Knowledge) [DB; CB; BB '17]
 ③ Server ⑦ Hub
 ④ Router ⑧ Switch
25. What is the name of the Bangali search engine? (Knowledge) [DB; CB; BB '17]
 ① Yahoo ⑤ Pipilika
 ② Bing ⑥ Google
26. What is server? (Knowledge) [RB; JB; SB; DjB; CtgB '17]
 ③ Strong Computer ⑤ Client
 ④ User ⑥ Media
27. What is the name of NIC? (Knowledge) [RB; JB; SB; DjB; CtgB '17]
 ① Adopter ⑤ Media player
 ② Server ⑥ Resource
28. Of what name is NIC? (Knowledge) [All Board '16]
 ③ Adoptor ⑤ Media player
 ④ Server ⑥ Resource
29. Who is the client who uses resources from a server? (Knowledge) [All Board '15]
 ① Server ⑤ Client
 ② Media ⑥ User
30. Which one is needed in the formation of network? (Knowledge) [All Board '14]
 ③ Network Interface Card
 ④ Hard Disk
 ⑤ Pen Drive
 ⑥ Ram
31. Pipilika is —. (Knowledge)
 [Ideal School and College, Dhaka]
 ① Search Engine ⑤ Browser
 ② Website ⑥ Web address
32. The computers that receive information from the server are called —.
 (Knowledge) [Ideal School and College, Dhaka]
 ③ Server ⑤ Internet
 ④ Clients ⑥ Router
33. NIC stands for —. (Knowledge)
 [Ideal School and College, Dhaka]
 ① Network Information collection
 ② National Information centre
 ③ Network Interface Card
 ④ National Inter face centre
-  Topology → Textbook Page 23
34. Which network is used to connect the whole country? (Knowledge) [DB '19]
 ① WAN ⑤ MAN
 ② LAN ⑥ PAN
- * Read the text and answer the question no. 35 and 36 :
 Mr Monoj wants to set up a computer network quickly for his office. For this reason he goes to Mr Nokib who is a network engineer. [DB '19]
35. Which network is the most suitable for the office of Mr Monoj? (Application)
 ③ Ring ⑤ Star
 ④ Bus ⑥ Tree
36. The network of selected topology will stop functioning if damage is occurred in central— (Higher Ability)
 i. Hub
 ii. Printer
 iii. Switch
 Which one is correct?
 ③ i & ii ④ i & iii ⑤ ii & iii ⑥ i, ii & iii



37. Which one is used to store and use information through internet? (Knowledge) [RB '19]

A Dropbox B Router
 C Switch D Network

- Answer to the questions no. 38 and 39 according to the picture given below :



[RB '19]

38. Above topology is the extended figure of which topology? (Comprehensive)

A Ring B Bus
 C Star D Mesh

39. If the no. 5 device becomes faulty —. (Higher Ability)

- network will be divided into two parts
- communication will be lost between no. 4 and no. 8 devices
- network will be running in no. 1, 2, 3 and 4 devices

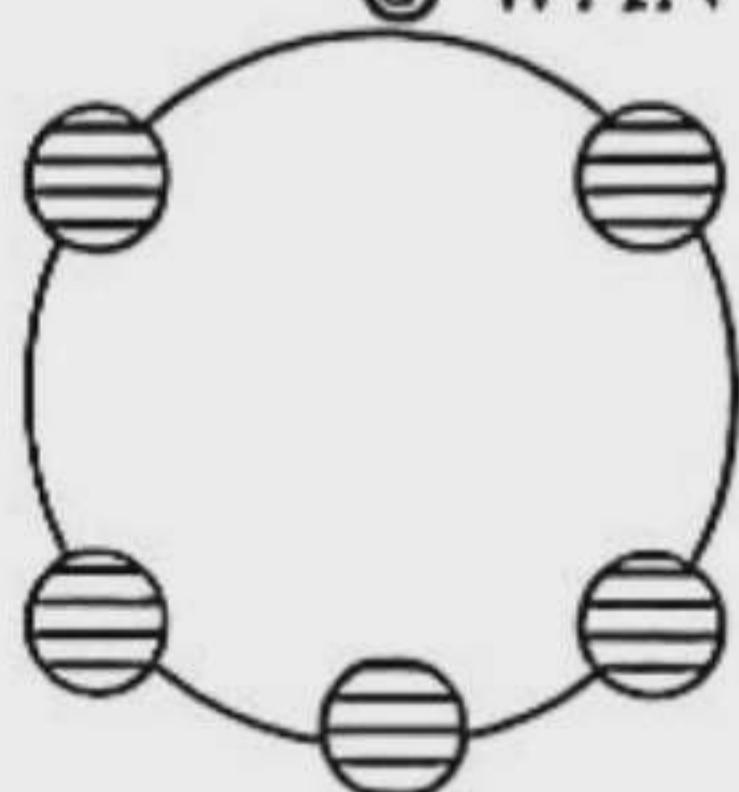
Which one is correct?

- A i & ii B i & iii C ii & iii D i, ii & iii
40. In which topology all computers are connected to a backbone line? (Knowledge) [JB '19]

A Bus B Star
 C Ring D Mesh

41. Generally a network is designed within a town is— (Knowledge) [JB '19]

A MAN B PAN
 C LAN D WAN



- Which topology is shown in the figure? (Comprehensive) [CB '19]

A Star B Ring
 C Mesh D Bus

43. Sharing information through a computer connected to a Printer, Blue-tooth. Share it is included in a network? (Knowledge) [CtgB '19]

A MAN B PAN
 C LAN D WAN

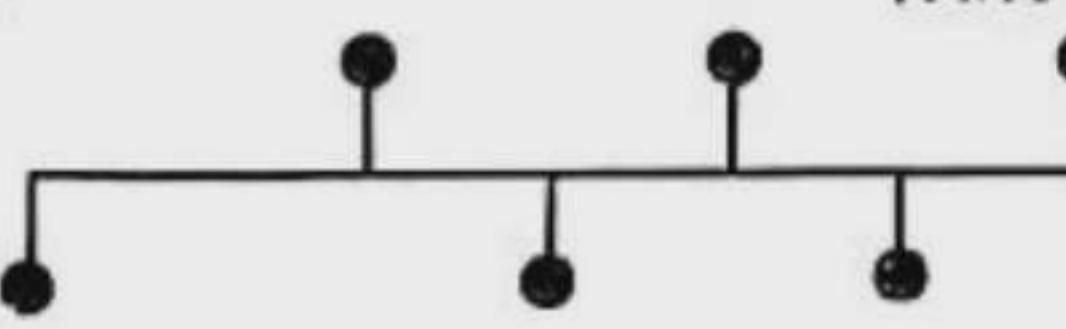
44. Which one of the following is used to connect the whole country or the world? (Knowledge) [SB '19]

A WAN B PAN
 C LAN D MAN

45. Mainly how many network are there? (Knowledge) [SB '19]

A 2 B 3 C 4 D 5

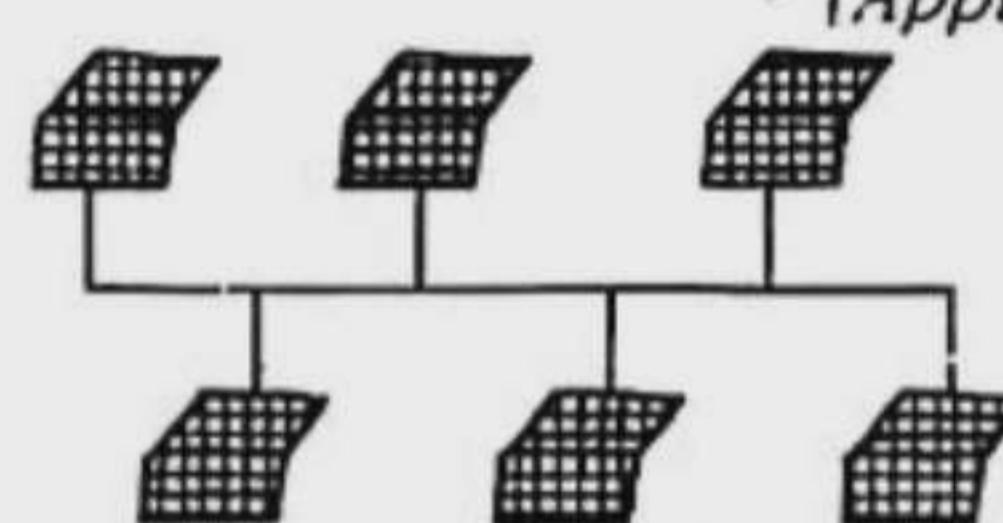
46. What kind of topology is the diagram below? (Knowledge) [SB '19]



- A Ring B Star C Bus D Mesh
47. In which topology whole network will be inactive if a computer is destroyed? (Knowledge) [BB '19]

- A Tree B Bus C Mesh D Ring
48. Through which Topology is every computer connected with each other? (Knowledge) [DjB '19]

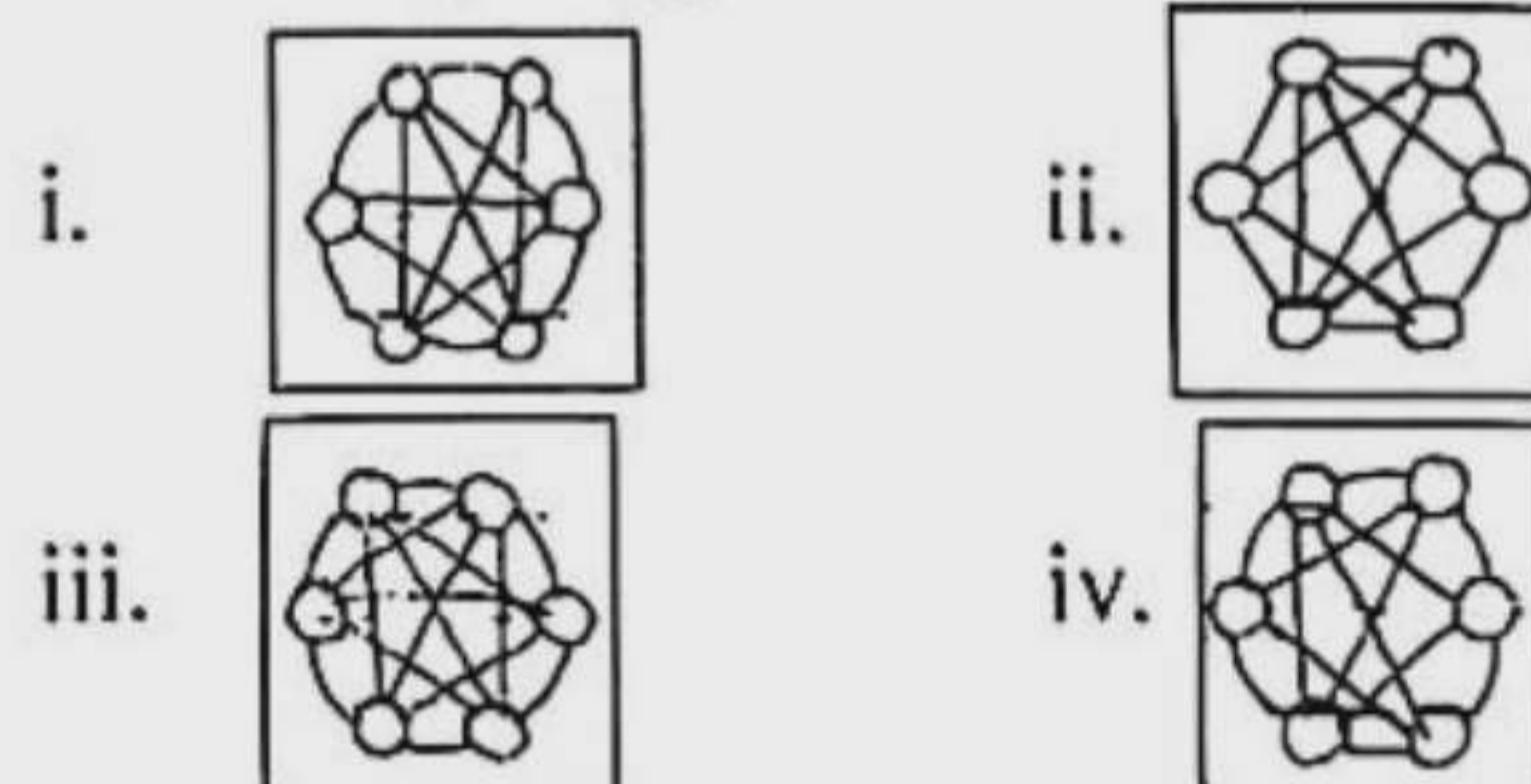
- A Mesh B Star C Ring D Tree
49. What kind of Topology is the picture below? (Application) [DB '18]



- A Ring B Bus C Tree D Mesh
50. Which one is personal network? (Knowledge) [DB '18]

- A MAN B LAN C PAN D WAN

51. Which one of the following stem is Complete Mesh Topology? (Knowledge) [DB '18]



Which one is correct?

- A ii B iii C iv D i
52. In Ring topology —. (Higher Ability) [JB '18]

- every computer is connected with two other computers.
- each computer is not connected to each pc
- whole network will be disabled if one gets damaged

Which one is correct?

- A i & ii B i & iii C ii & iii D i, ii & iii

53. In which topology every computer is connected to each other? (Knowledge) [CB '18]

A Mesh B Tree

- A Star D Ring

54. If a computer get damaged, rest of the network becomes active, that is —. (Higher Ability) [CtgB '18]

- Bus
- Ring
- Star

Which one is correct?

- A i & ii B i & iii C ii & iii D i, ii & iii

55. What is the full form of WAN? (Knowledge) [SB '18]

A Wide Area Netback B Wide And Network

- C Wide Area Network D Word Area Network

56. Which is called the network that is created across the country? (Knowledge) [SB '18]

- A PAN
- C WAN
- B LAN
- D MAN



57. Which topology is shown in the image? (Comprehensive) [SB '18]

- A Bus
- C Ring
- B Tree
- D Mesh

58. In which topology is the computer connected to the other to two more computers? (Knowledge) [DB; CB; BB '17]

- A Mesh
- B Star
- B Ring
- D Bus

59. What is the full form of WAN?

(Knowledge) [RB; JB; SB; DjB; CtgB '17]

- A Wide Area Network
- C Wide Area Network
- B Wide And Network
- D World Area Network

60. What is wireless internet service?

(Knowledge) [RB; JB; SB; DjB; CtgB '17]

- A e-book
- B GPS
- B Bandwidth
- D Wi-Fi

61. Which topology remains connected with a central Hub? (Knowledge) [All Board '16]

- A Star
- C Bus
- B Ring
- D Mesh

62. What is the shape of ring topology? (Knowledge) [All Board '15]

- A Like a round circle
- C Like a four armed
- B Like a triangle
- D Long

63. What is Wi-Fi? (Knowledge) [All Board '15]

- A Wire
- C Network
- B Data
- D Modem

64. In which topology all the computers are connected with a central hub? (Knowledge) [All Board '14]

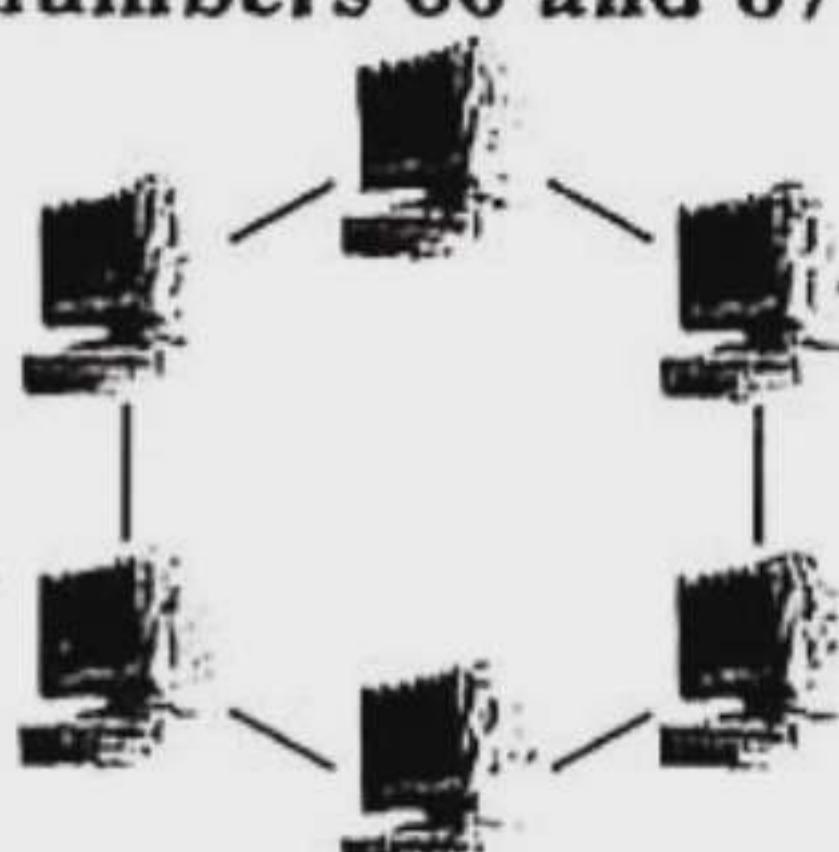
- A Mesh
- B Bus
- B Star
- D Ring

65. In which topology every computer is connected with two adjacent computers?

(Knowledge) [Rajuk Uttara Model College, Dhaka]

- A Bus
- B star
- B ring
- D mesh

■ Read the following passage and answer the question numbers 66 and 67 :



66. What kind of topology does the figure show?

(Comprehensive)

- A ring topology
- C mesh topology
- B bus topology
- D tree topology

67. The characteristics of this type of topology are —. (Higher Ability)

- i. every computer is connected to every other computer
- ii. every computer is connected to two other computer
- iii. in this topology information travels in a specified direction

Which one of the following is correct?

- A i & ii
- B i & iii
- C ii & iii
- D i, ii & iii

■ Observe the following figure and answer the question numbers 68 and 69 :



68. What is the name of the device? (Comprehensive)

- A modem
- C router
- B hub
- D switch

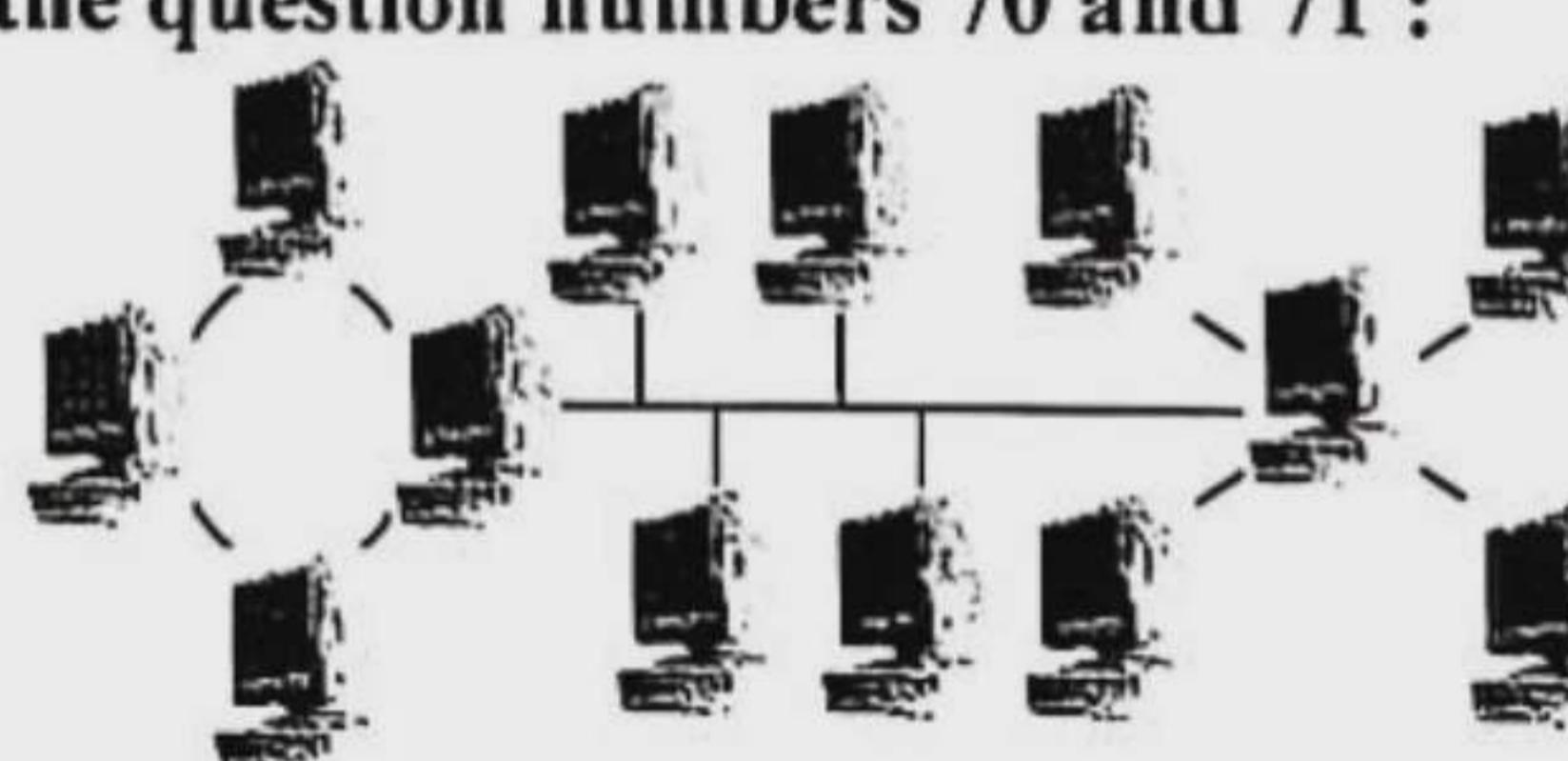
69. The activities of this devicst are —. (Higher Ability)

- i. show the route of data or information
- ii. connects two networks under the same protocol
- iii. connects two networks under different protocols

Which one of the following is correct?

- A i & ii
- B ii & iii
- C i & iii
- D i, ii & iii

■ Observe the following figure and answer the question numbers 70 and 71 :



70. The topology above picture indicates —. (Comprehensive)

- A ring topology
- C mesh topology
- B tree topology
- D hybrid topology

71. In the figure the various topology that can be seen in —. (Higher Ability)

- i. ring topology
- ii. bus topology
- iii. star topology

Which one of the following is correct?

- A i & ii
- B ii & iii
- C i & iii
- D i, ii & iii

Use of Network

► Textbook Page 25

72. What kind of software is Google chrome? (Knowledge) [DB '19]

- A Database software
- B Spread sheet software
- C Browser software
- D Word processing software

- 82.** At present, the most popular social network is —. *(Higher Ability) [BB '18]*

 - facebook
 - twiter
 - e-mail

Which one is correct?

a **@ i & ii** **⑤ i & iii** **© ii & iii** **④ i, ii & iii**

83. At present, popular social Network is —. *(Higher Ability) [DjB '18]*

 - twitter
 - facebook
 - google

Which one is correct?

a **@ i & ii** **⑤ i & iii** **© ii & iii** **④ i, ii & iii**

84. The advantage of using Dropbox is —. *(Higher Ability) [DB: CB; BB '17]*

 - It can be opened at any location
 - The information is kept secret and stored in it
 - Can be carried through the CD

Which one is correct?

a **@ i & ii** **⑤ i & iii** **© ii & iii** **④ i, ii & iii**

Read the following passage and answer the question numbers 85 and 86 :

Shirin was working in her office using database software. Sharmin, a colleague of Shirin, while doing the same work, she found out that her computer does not have the software. Then she asked Shirin to share the software.

85. Which one is required to do Shirin's activities? *(Comprehensive)*

ⓐ radio	ⓑ network
ⓑ mobile	ⓓ software

86. The things what Shirin can share along with software are —. *(Higher Ability)*

 - printer
 - radio
 - fax

Which one of the following is correct?

b **@ i & ii** **⑤ i & iii** **© ii & iii** **④ i, ii & iii**

Read the following passage and answer the question numbers 87 and 88 :

Rina works in a customer care center. She receives complain or opinion of the customer about their services and reply back. This communication is done by internet.

87. The service Rina is receiving is called —. *(Comprehensive)*

ⓐ topology	ⓑ call center
ⓒ cloud computing	ⓓ protocol

88. To receive which the mentioned service, Rina had to —. *(Higher Ability)*

 - take help from network
 - pay money
 - buy a mobile

Which one of the following is correct?

a **@ i & ii** **⑤ ii & iii** **© i & iii** **④ i, ii & iii**

Use of Network

Textbook Page 27

89. Which device allocates a different address for every node and transfers data from one address to another whenever necessary? (Knowledge) [DB '19]
 @ Hub Ⓛ Router
 Ⓜ Modern Ⓝ Switch
90. The origin of the word 'Router' is— (Knowledge) [RB '19]
 Ⓛ Root Ⓛ Radio
 Ⓜ Route Ⓛ Routing
91. Router— (Higher Ability) [RB '19]
 i. is a network device
 ii. shows route to data
 iii. compulsory device to run internet
Which one is correct?
 Ⓛ Ⓛ i & ii Ⓛ i & iii Ⓛ ii & iii Ⓛ i, ii & iii
92. What is Abacus? (Knowledge) [RB '19]
 Ⓛ A writing device
 Ⓛ A counting device
 Ⓛ A music listening device
 Ⓛ A talking machine
93. In computer network are used— (Higher Ability) [JB '19]
 i. switch
 ii. hub
 iii. server
Which one is correct?
 Ⓛ Ⓛ i & ii Ⓛ i & iii Ⓛ ii & iii Ⓛ i, ii & iii
94. By which below data is shared by data packet? (Knowledge) [CtgB '19]
 Ⓛ Hub Ⓛ Switch
 Ⓛ Router Ⓛ USB Hub
95. 'Router' has come from which of the following? (Knowledge) [SB '19]
 Ⓛ Rout Ⓛ Route
 Ⓛ Rutere Ⓛ Ruter
96. Which of the following device can send information to a specific address? (Knowledge) [BB '19]
 Ⓛ Hub Ⓛ Router
 Ⓛ Switch Ⓛ Modem
97. At present, which one is used most of the time to set up any network? (Knowledge) [DjB '19]
 Ⓛ Iancard Ⓛ Switch
 Ⓛ Router Ⓛ Hub
98. Which device is formed by hardware and software? (Knowledge) [DB '18]
 Ⓛ Switch Ⓛ Router
 Ⓛ Node Ⓛ Hub
99. Which device is the combination of both hardware and software? (Knowledge) [CtgB '18]
 Ⓛ Hub Ⓛ Modem
 Ⓛ Switch Ⓛ Router
100. Which one can be considered as resources? (Knowledge) [SB '18]
 Ⓛ LAN Adapter Ⓛ Fibre optics
 Ⓛ Printer Ⓛ Protocol

101. Where is the MAC Address used? (Knowledge) [SB '18]
 Ⓛ Router Ⓛ Mobile
 Ⓛ Hub Ⓛ Switch
102. Which device is used to connect two active networks under the same protocol? (Knowledge) [BB '18]
 Ⓛ Switch Ⓛ Router
 Ⓛ Hub Ⓛ LAN Card
103. Which of the following device is used that transfer the digital signal received from the computer and sends to the network? (Knowledge) [BB '18]
 Ⓛ Modem Ⓛ Hub
 Ⓛ Switch Ⓛ Router
104. Computer Network devices are— (Higher Ability) [DjB '18]
 i. switch
 ii. mobile
 iii. hub
Which one is correct?
 Ⓛ Ⓛ i & ii Ⓛ ii & iii Ⓛ i & iii Ⓛ i, ii & iii
105. What is the reason for working faster switch than hub? (Comprehensive) [DB: CB: BB '17]
 Ⓛ Huge number of software
 Ⓛ Not using the address
 Ⓛ Use different address
 Ⓛ Direction the path of the data
106. What is the main job of Router? (Knowledge) [RB: JB: SB: DjB: CtgB '17]
 Ⓛ Data preserve
 Ⓛ Raising speed of internet
 Ⓛ Read the ICT language
 Ⓛ Direction the way of information
107. The word "Router" has derived from which word? (Knowledge) [All Board '16]
 Ⓛ Route Ⓛ Rout
 Ⓛ Ruter Ⓛ Rute
108. From what word the word router has come? (Knowledge) [All Board '15]
 Ⓛ Rout Ⓛ Route
 Ⓛ Routee Ⓛ Routeer
109. Which one allots address to the devices connected with its own? (Knowledge) [All Board '14]
 Ⓛ Hub Ⓛ Router
 Ⓛ Switch Ⓛ Protocol
110. may be a resource. (Higher Ability)
 [Rajuk Uttara Model College, Dhaka]
 i. Printer
 ii. Software
 iii. Optical fiber
Which one is correct?
 Ⓛ Ⓛ i & ii Ⓛ i & iii Ⓛ ii & iii Ⓛ i, ii & iii
111. MAC is—. (Knowledge) [Ideal School and College, Dhaka]
 Ⓛ Multi address centre
 Ⓛ Media Access control
 Ⓛ Media Address control
 Ⓛ Multi Access control

- 112. With what kind of network is hub used?** (Knowledge)
- Ⓐ wired network Ⓑ wire-less network
 - Ⓑ mobile network Ⓒ satellite
- 113. Which one is the facility to connect a device with others?** (Knowledge)
- Ⓐ computer Ⓑ mobile
 - Ⓒ hub Ⓒ telephone
- 114. Hub is used in —.** (Knowledge)
- Ⓐ building computer network Ⓑ computer
 - Ⓒ building mobile network Ⓒ mobile
- 115. Which one is a hub?** (Knowledge)
- Ⓐ internet hub Ⓑ USB hub
 - Ⓑ network hub Ⓒ all of them
- 116. Which one is the main disadvantage of hub?** (Knowledge)
- Ⓐ hub cannot send information to any particular destination Ⓑ time consuming
 - Ⓒ hub cannot read information Ⓒ hub cannot built network by using multiple parts
- 117. Which one is the common connection point among the network related devices?** (Knowledge)
- Ⓐ hub Ⓑ router
 - Ⓑ modem Ⓒ fiber
- Network Related Devices** ► Textbook Page 29
- 118. Which is used to convert digital signal into analog signal?** (Knowledge) [JB '19]
- Ⓐ Modem Ⓑ Router
 - Ⓑ Hub Ⓒ Switch
- 119. Which one is an important device to connect network through internet?** (Knowledge) [CB '19]
- Ⓐ Modem Ⓑ Router
 - Ⓑ LAN Card Ⓒ Hub
- 120. The functions of Modem are —.** (Higher Ability) [SB '19]
- To transform the signals received from the computer and send it to network
 - To transform the signals received from the network and send it to the computer
 - To set up a communication from computer to computer
- Which one is correct?
- Ⓐ Ⓐ i & ii Ⓑ i & iii Ⓒ ii & iii Ⓓ i, ii & iii
- 121. Which of the following devide can convert digital to analog and analog to digital signal?** (Knowledge) [BB '19]
- Ⓐ Pendrive Ⓑ Router
 - Ⓑ LAN car Ⓒ Modem
- 122. Which one of the following is attached built in with motherboard of a computer at present?** (Knowledge) [RB '18]
- Ⓐ MAN Card Ⓑ WAN Card
 - Ⓒ LAN Card Ⓒ Graphics Card

- 123. Which one changes digital signals from computer into analogue signals?** (Knowledge) [All Board '14]
- Ⓐ Router Ⓑ Switch
 - Ⓒ Hub Ⓒ Modem
- 124. Which device plays the role of interpreter?** (Knowledge) [Rajuk Uttara Model College, Dhaka]
- Ⓐ LAN card Ⓑ Router
 - Ⓑ Switch Ⓒ Modem
- 125. Which one connects two computers to the telephone line?** (Knowledge)
- Ⓐ hub Ⓑ modem
 - Ⓑ switch Ⓒ repeater
- 126. Modulator and demodulator are the parts of —.** (Knowledge)
- Ⓐ router Ⓑ modem Ⓒ repeater Ⓓ fibre
- 127. 'Mo' and 'Dem' of the word modem consequently means —.** (Knowledge)
- Ⓐ modulator Ⓑ modem
 - Ⓒ demodulator Ⓒ modulator and demodulator
- Some More Network Related Devices**
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- 128. When Bangabandhu Satellite was sent on the space?** (Knowledge) [SB '19]
- Ⓐ 2015 Ⓑ 2016 Ⓒ 2017 Ⓓ 2018
- 129. Read the text below and answer the questions no. 129 and 130 :**
- It is possible to send a large number of singnals through optical fibres. Thousands of telephone calls can be sent just through a single optical fibre. [DjB '19]
- 130. Through the above mentioned cable—** (Higher Ability)
- to send light signal
 - the velocity of the light signal decreases less than one third
 - several thousands telephone calls are possible to send
- Which one is correct?
- Ⓐ Ⓐ i & ii Ⓑ i & iii Ⓒ ii & iii Ⓓ i, ii & iii
- 131. When was 'Bangabandhu Satellite-1' sent in the space?** (Knowledge) [DjB '19]
- Ⓐ 12 January 2018 Ⓑ 12 February 2018
 - Ⓒ 12 March 2018 Ⓒ 12 May 2018
- 132. What is the name of the submarine cable through which Bangladesh is connected to the outer world?** (Knowledge) [DB '18]
- Ⓐ SEA-WE-ME-4 Ⓑ SEA-ME-WE-4
 - Ⓒ WE-ME-SEA-4 Ⓒ SEA-ME-4
- 133. Alternative name of 'SEA-ME-WE-4' is —.** (Higher Ability) [RB '18]
- Optical Fibre
 - Optical Cable
 - Submarine Cable
- Which one is correct?
- Ⓐ Ⓐ i & ii Ⓑ i & iii Ⓒ ii & iii Ⓓ i, ii & iii

- 134. In which year, first GO stationary Satellite is sent?** *(Knowledge) [JB '18]*
- C** @ 1945 **B** 1946
C 1964 **D** 1965

- 135. How many kilometers height Geo-satellite?** *(Knowledge) [CB '18]*
- A** 35 thousand **B** 36 thousand
B 37 thousand **D** 38 thousand
- 136. In which year geo-stationary satellite was set up?** *(Knowledge) [BB '18]*
- C** @ 1944 **B** 1954
C 1964 **D** 1974

- 137. Optical fibre is —.** *(Higher Ability)*

- a kind of thin glass rod
- a medium for sending signal
- an infrared

Which one of the following is correct?

- A** @ i & ii **B** ii & iii **C** i & iii **D** i, ii & iii
- 138. For exchanging data through modem, it requires —.** *(Higher Ability)*

- optical fibre
- geo-stationary satellite
- co-anial cable

Which one of the following is correct?

- B** @ i & ii **B** i & iii **C** ii & iii **D** i, ii & iii

Short Q/A



Designed as per topic



The Idea of Network

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Question 1. How is a computer network created?

Ans. A computer network is created by connecting two or more computers together through a medium such as cable, fiber optic cable, or WiFi. The computers can communicate with each other through this connection. A network interface card, hub, switch, router, and network operating system are required to create a network.

Question 2. What is a server? Explain.

Ans. A server is a computer that provides services to other computers in a network. It acts as the central computer of the network. The server can provide file sharing, email, web page hosting, database management, and many other services.

Question 3. What is a client in a computer network? Explain.

Ans. A client is a computer that receives services from the server in a network. The client can download files, send emails, browse the web, and do many other things from the server. Personal computers, laptops, and smartphones are examples of clients.

Question 4. What does an email server do?

Ans. An email server is a server that sends, receives, and stores emails. When users send emails from client computers, the email server sends them to the recipient's server.

Question 5. List the different types of media used to form a network.

Ans. Media is the thing used to connect computers together. Examples include electric cable, coaxial cable, and optical fiber. Computers can also be connected to a network without any cable or media, as in the case of WiFi.

Question 6. What is the difference between wired and wireless networks?

Ans. The difference between wired and wireless networks is :

Wired Network	Wireless Network
1. In this network, computers are connected by cable or wire.	1. In this network, computers are connected by WiFi, Bluetooth, radio waves, etc.
2. It is more secure and faster.	2. It is comparatively less secure and its speed is also somewhat less.

Question 7. Why is a network adapter needed?

Ans. A network adapter or Network Interface Card (NIC) is a very important piece of hardware for a computer. It connects a computer to a network and allows it to communicate with other devices. It is a network doorway for a computer, without which it is not possible to connect to other devices.

Question 8. What is meant by resource?

Ans. A resource is any facility offered to clients for their use. If a printer or a fax machine is connected to a computer, it is a type of resource.

Question 9. Write the differences between client and resource.

Ans. The differences between client and resource are given below :

Client	Resource
1. The computers that take any kind of information from the server are called clients.	1. The facilities that are provided to the client for use are all resources.
2. The service received by using a printer is the client.	2. If a printer is connected to a computer or client, then the printer is the resource.



Client	Resource
3. The client receives service from the server.	3. The resource provides service to the client with the permission of the server.

Question 10. What is a user and what is its role?

Ans. A user is a client who uses resources from a server or client computer. Users use the network for sending emails, downloading files, using printers, accessing software, and so on.

Question 11. What is protocol? Explain.

Ans. A protocol is a set of rules or instructions used for communication between computers. It determines how information will be sent, how it will be received, and what to do in case of errors. Without protocols, different types of computers and networks would not be able to communicate with each other. For example, the HTTP protocol is used to load web pages, and the FTP protocol is used to transfer files.

► Topology

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Question 12. Based on location, how many ways can a computer network be divided? Explain.

Ans. In a computer network, many computers are connected together so that one can communicate with another. Based on the location of the computers within the network, computer networks can be divided into the following categories :

1. PAN (Personal Area Network)
2. LAN (Local Area Network)
3. MAN (Metropolitan Area Network)
4. WAN (Wide Area Network)

Question 13. What is a Personal Area Network?

Ans. A Personal Area Network (PAN) is a small network created for personal use. Usually, this network covers a limited area, such as an office desk or a house. Computers, smartphones, tablets, printers, and other personal electronic devices are usually connected in a PAN. PANs are created using Bluetooth or Wi-Fi technology.

Question 14. Explain Local Area Network.

Ans. A Local Area Network (LAN) is a computer network that covers a small geographical area, such as an office, a school, or a house. Computers, printers, servers, and other network devices are usually connected in a LAN. Devices connected to a LAN can communicate with each other.

Question 15. How is a Metropolitan Area Network formed?

Ans. A Metropolitan Area Network (MAN) is a computer network that covers a large geographical area, such as a city or metropolis. A MAN is usually formed by connecting multiple LANs. The

computers of different organizations, government offices, and educational institutions are connected through a MAN. Fiber optic cable, microwave links, and satellite links are usually used to form a MAN.

Question 16. The network with the largest coverage is the Wide Area Network - explain.

Ans. A Wide Area Network (WAN) is the largest type of computer network. It can cover different countries and continents of the world. The Internet is an example of a WAN. Telephone lines, satellite links, and other media are usually used to form a WAN. Millions of computers can be connected through a WAN, which has made it easier to communicate information worldwide.

Question 17. What is meant by topology?

Ans. Topology refers to the different ways in which two or more computers are connected together in a network. It indicates how the different devices (such as computers, printers) in a network are connected to each other and how information flows between them. Essentially, topology is the design of a network.

Question 18. Explain bus topology with a diagram.

Ans. Bus topology is a method of connecting many computers together very easily. In this topology, all the computers are connected to a main backbone or main line. In bus topology, if one computer wants to communicate with another computer, the information reaches all the computers. However, only the computer that is supposed to communicate with the sender receives the information. All other computers ignore the information.

Question 19. Write the advantages of bus topology.

Ans. The advantages of bus topology are as follows :

1. The backbone is one and its organization is simple and common.
2. Less cable is required.
3. The cost is low.
4. If one computer breaks down, other computers can continue to function normally.
5. Bus topology can be expanded.

Question 20. Mention the disadvantages of bus topology.

Ans. The disadvantages of bus topology are as follows :

1. If the number of computers in the network increases, there are problems in exchanging data or information.
2. It takes more time to exchange more data at the same time.
3. If the backbone cable breaks down, the entire network is shut down.
4. It is difficult to find errors.

Question 21. Explain ring topology.

Ans. Ring topology is a network structure where all devices are connected in a closed circular path. Data flows from one device to another in the same direction along this circular path. It is called ring topology because it looks like a ring.

Question 22. Mention two advantages of ring topology.

Ans. Two advantages of ring topology are as follows :

1. Adding or removing new devices in ring topology has less complexity compared to other topologies, similar to bus topology.
2. If there are not too many devices on the network, then ring topology can transmit data quite quickly.

Question 23. In which topology is each computer connected to two other computers? Give a description of that topology with a diagram.

Ans. In ring topology, each computer is connected to two other computers. A description of ring topology with a diagram is given below :

Ring topology is a topology in which computers are connected to each other in the form of a ring or circle. In this topology, information goes from one computer to another in a specific direction. However, in ring topology, the computers may not always be circular, they can also be scattered. That is, whenever there is circular communication between computers, it is ring topology.

Question 24. Explain the limitations of ring topology.

Ans. The main limitation of ring topology is that if one device in the network fails, the data transmission of the entire network may stop. Also, if there are many devices on the network, it can take a long time for data to travel from one device to another.

Question 25. Explain star topology.

Ans. Star topology is a network structure where all devices are connected to a central device (such as a hub, switch). This central device controls all the data traffic of the network and manages the sending and receiving of data between the connected devices. It is called star topology because it looks like a star.

Question 26. Compare ring and star topology.

Ans. The comparison between ring and star topology is given below :

Ring	Star
1. In ring topology, each computer is connected to two other computers.	1. In star topology, all computers are connected to a central hub.
2. In ring topology, information goes from one computer to another in a specific direction.	2. In star topology, information goes from one computer to another in a specific direction through the hub.
3. It requires less cable.	3. It requires more cable.

Question 27. Why is star topology better than ring topology?

Ans. Star topology is considered better than ring topology. This is because if there is a problem with any device in star topology, it only affects that device, not the entire network. And if there is a problem with any device in ring topology, the work of the entire network may stop. Apart from this, it is very easy to add or remove new devices in star topology.

Question 28. Write the characteristics of star topology.

Ans. The characteristics of star topology are mentioned below :

1. As star topology can be controlled centrally, error detection is easy.
2. The speed of data movement in star topology is high.
3. New computers can be added to the star without causing any disruption to the network.
4. Different types of cables can be used in the same network.

Question 29. Mention two disadvantages of star topology.

Ans. The two main disadvantages of star topology are :

1. If the central hub fails, the entire network fails.
2. More cable is required in this topology. This is because the cable has to be taken from every computer to the central hub. As more cable is required, the cost is also higher.

Question 30. Mention two advantages of star topology.

Ans. Two advantages of star topology are :

1. More computers can be easily added to the network.
2. If one computer in the network breaks down, it does not affect the network. Other computers can communicate properly with each other. It is also easy to figure out which computer is having problems.

Question 31. Explain that many star topologies are combined in tree topology.

Ans. Tree topology is a network structure where many star topologies are combined to form a tree-like structure. In this topology, each computer is connected to all the computers in the previous and next levels, which is similar to star topology. Therefore, tree topology is as reliable and scalable as star topology.

Question 32. Explain tree topology.

Ans. In tree topology, computers or nodes are arranged and connected to each other like the branches of a tree. In this, computers of multiple levels are connected to a central server. Tree



provides more advantages than other topologies in forming large networks. In the case of tree topology, data security is the highest.

Question 33. Write the advantages of tree topology.

Ans. The advantages of tree topology are :

1. The network can be expanded at any time.
2. Data security is the highest.
3. If one branch of the network is damaged, the entire network does not stop working.

Question 34. Write the disadvantages of tree topology.

Ans. The disadvantages of tree topology are :

1. If the main computer is damaged, the entire network is shut down.
2. More complex in nature than other topologies.
3. Implementation cost is relatively high.

Question 35. Explain mesh topology.

Ans. Mesh topology is a network structure where each device is directly connected to all other devices. It is a fully connected network. Mesh topology is very reliable because if one connection fails for any reason, data can be sent through another path.

Question 36. Why is mesh topology expensive even though it is reliable?

Ans. Mesh topology is convenient to use because it is very reliable. If one connection fails, data can be sent through another path. Also, mesh topology can transmit data very quickly. However, many cables are needed to establish a mesh topology, so it can be very expensive.

Question 37. Which topology is more convenient to use in network? Explain with logic.

Ans. Mesh topology is more convenient to use in network. In mesh topology, computers are connected to each other and can be connected in multiple paths. As a result, even if one computer breaks down, it does not affect the entire network. Network problems can be solved very easily in mesh topology. The reliability of data communication is very high in this. Therefore, mesh topology is more convenient to use in network.

Question 38. Which topology has a direct link to each computer? Give a brief description of that topology.

Ans. In mesh topology, each computer has a direct link to each other. A brief description of mesh topology is given below :

In mesh topology, computers are connected to each other. In this case, computers can be connected to each other in multiple ways. If one computer in such a network is damaged, there is no difficulty in exchanging information with other computers in the network. In other words, mesh topology network is a simple network.

Question 39. What is a complete mesh? Show a complete mesh of six computers with a diagram.

Ans. If each computer in a network is directly connected to all other computers in the network, it is called a complete mesh. A complete mesh of six computers is shown in the image below :

Question 40. Write with logic which is better between mesh and tree topology.

Ans. Mesh topology is better than tree topology. This is because in mesh topology every computer is connected to each other. The computers not only take information from other computers but can also distribute it among other computers in the network. Even if one computer in this network is damaged, other computers in the network remain active. On the other hand, if the main computer or boot computer of the tree topology network is damaged, the network is shut down. That's why mesh topology is better.

Question 41. What is meant by hybrid topology?

Ans. Hybrid topology is a network structure where two or more types of topologies are combined. For example, star topology and ring topology can be used together in a network. Hybrid topology is suitable for large and complex networks because it combines the advantages of different types of topologies and reduces the weaknesses of any particular topology.

Use of Network

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Question 42. How has the network added a new dimension to information management?

Ans. The network has added a new dimension to information management. It allows for the instant exchange of information. Previously, information gathering and dissemination was difficult and time-consuming, but now information can be easily delivered to everyone through the network. In addition, there have been changes in the way information is stored and used, such as storing information in databases and the facility of quick searching.

Question 43. Why is database important for information gathering and presentation?

Ans. A database is a very important tool for collecting and presenting information. It stores a large amount of information in a coherent and well-organized manner, which later helps in analysis, decision-making, and report generation. Finding information becomes very easy with the help of a database and information security can also be ensured. In addition, information can be presented in various ways through databases, such as through charts, graphs, etc.

Question 44. What are the benefits of the e-ticket system?

Ans. One of the main benefits of the e-ticket system is that it eliminates the need for passengers to carry paper tickets. Passengers only need to provide their identity and the airline authorities can collect ticket information through the network. This saves time, reduces the hassle of losing tickets, and makes the check-in process at the airport easier.

Question 45. How does information technology save people time?

Ans. Information technology reduces time wastage in our daily lives. For example, now we can transact money from anywhere, anytime through mobile banking without having to stand in line for a long time. Through the e-ticketing system, we can buy plane, train, or bus tickets from home. In the field of health, patients in remote areas can also consult with skilled doctors through telemedicine, and they do not have to travel far to go to the doctor.

Question 46. What are the benefits of software sharing through the network?

Ans. The main benefit of software sharing through the network is that there is no need to install software separately on each computer. The software is stored on a central server and other computers can use it. This reduces the cost of using software and allows ordinary users to use many software for free or at a low cost.

Question 47. Explain the Dropbox service.

Ans. Dropbox is a cloud storage service that allows users to store their files and folders online and access them from any device. It helps users share and back up their files. With Dropbox, users can work without worrying about losing their files because the files are stored securely online.

Question 48. Give your opinion in light of the statement "Dropbox is a popular service on the Internet".

Ans. Dropbox is a popular service system. In this system, not only can one use a software, but a person can also keep all his personal things somewhere else instead of keeping them on his computer and use it from anywhere in the world at any time. Such a system is called Dropbox. Dropbox saves time and effort. Therefore, Dropbox is a popular service on the Internet.

Use of Network

► Textbook Page 27

Question 49. How does a network save a company money?

Ans. Network technology can reduce the cost of a company a lot. By using cloud computing, companies do not need to buy their own servers, which reduces hardware and software costs a lot.

Question 50. Explain the concept of cloud computing.

Ans. Cloud computing is a technology that allows users to use storage space, computing power, and software of computers located elsewhere through the Internet. It reduces the need for users to keep everything on their own computers. Using this, users can save their files, pictures, documents, etc. and access them from anywhere, anytime.

Question 51. What are the main benefits of using cloud computing?

Ans. The main benefits of using cloud computing are :

1. Reduces hardware and software costs.
2. Services can be taken and costs can be controlled according to need.
3. Information can be stored and used from anywhere.
4. Ensures information security.

Question 52. Explain that Gmail is a cloud computing service.

Ans. Gmail is an email service from Google. When we use Gmail, we store our emails on Google's servers. These servers are the cloud. In other words, we can access our emails from any device through the Internet without keeping them on our computer. So it is an example of cloud computing.

Question 53. Explain social network.

Ans. Social network is a digital medium where people can communicate with each other. It allows sharing pictures, videos, messages, and information through the network. Facebook and Twitter are currently two popular social networks, which have made communication easier worldwide and made information exchange more dynamic.

Question 54. How has telephone communication improved through the network?

Ans. Through the network, now not only voice, but also video calls allow people to see each other. Office meetings, personal discussions, and distance learning are also possible through platforms like Skype, Zoom, Google Meet, which has made the communication system much more advanced and effective than before.



Question 55. How has the network changed our entertainment?

Ans. The network has completely changed our concept of entertainment. Previously, we used to go to the cinema hall, watch videos, or listen to the radio for entertainment. But now through the Internet, we can watch movies, series, and listen to music at home. Instead of chatting with friends, we now use group chat on social media. Instead of playing sports on the field, we can now play games online with others.

Question 56. Explain that the new resource of the world is information.

Ans. Today's age is called the information age. Information is our greatest asset. Any information can be found from anywhere in the world through the Internet. We can learn through information, discover new things, and solve problems. Information is the main source of knowledge. Therefore, it can be said that information is the new resource of the world.

 **Network Related Devices** ► Textbook Page 29

Question 57. Write what you know about hubs.

Ans. Hubs are usually used to connect many wired ICT devices together in a wired network. Hubs allow one device to communicate with another. When we say hub, we usually mean an internet hub or network hub. But recently, USB hubs have also become common.

Question 58. Explain that hubs cannot send information to specific addresses.

Ans. When information or data passes through a hub from one device to another, the hub cannot read it. When information or data is sent from one computer to another, the hub sends that information or data to all the computers connected to it. Even the computer from which the information was sent, the hub sends the information to it as well. That is, the hub cannot send information to a specific address.

Question 59. Why are switches used?

Ans. A switch is a networking device that is more advanced than a hub. The switch looks at the destination address of the data packet and sends the data only to that specific device. As a result, the switch is much more efficient and secure than the hub. Switches are used because :

1. The switch sends data only to the specified device, which reduces network traffic.
2. The switch does not broadcast data, so unauthorized devices cannot access the data.
3. Large and complex networks can be created through switches.

Question 60. Explain how a switch works.

Ans. A switch allocates an address to each ICT device connected to it and exchanges information according to that address. That is, if you want to send data or information from one address to another, the switch delivers the information from one address to another. Because of using separate addresses, the switch can work very fast.

Question 61. What are the differences between hub and switch?

Ans. The differences between hub and switch are :

Hub	Switch
1. The hub cannot individually identify each ICT device connected to the cable.	1. The switch can individually identify each ICT device connected to the cable.
2. The hub's working speed is low.	2. The switch's working speed is higher than the hub's.
3. The price of a hub is comparatively low.	3. The price of a switch is higher than a hub's.
4. There is a possibility of interference in data exchange through hubs.	4. There is no possibility of interference in data exchange through switches.

Question 62. What is meant by MAC address?

Ans. A MAC (Media Access Control) address is a unique ID that each network interface card has. It is a hardware address and is assigned when the device is manufactured. Network devices can recognize each other using MAC addresses.

Question 63. Describe how a router works in networking.

Ans. A router is located between two different networks. It can also be located between more than two different networks. It works to send data received from one network to another using the shortest path. It delivers data packets from the source computer to the destination computer. The address of the destination is attached to each data packet. When a data packet arrives at a router, the router instructs it on which path to proceed in order to reach the destination easily and quickly.

Question 64. What is a data packet? Explain.

Ans. Data packets are small pieces of data that are sent over a network. Each packet contains the destination address, source address, and data. Data packets are used to send data through different networks.

► Some More Network Related Devices

► Textbook Page 31

Question 65. Why is a modem important for connecting to the Internet?

Ans. A modem is a very important device for connecting to the Internet. The modem connects our computer or any other device to the Internet. It converts the digital signal given from our device into an analog signal, which can be sent through the Internet cable. On the other hand, it converts the analog signal coming from the Internet back into a digital signal and sends it to our device.

Question 66. Describe the working of a modem.

Ans. A modem has two parts - modulation and demodulation. A modem is used to send data or information over the Internet. It converts the digital signal received from a computer into an analog signal. This is called modulation. Again, the task of converting an analog signal into a digital signal is called demodulation. The job of a modem is to modulate and demodulate signals.

Question 67. When is a LAN card needed?

Ans. The device that is essential for connecting two or more computers together is a LAN card. That is, if we want to build a network, then a LAN card is a must. A LAN card is needed to send or receive any information or data from one ICT device connected to the network to another.

Question 68. What is the difference between modem and LAN card?

Ans. The difference between modem and LAN card is :

Modem	LAN Card
1. It is used to connect to the network via the Internet.	1. It is used to establish a connection between multiple computers.
2 It is essential for Internet connection.	2. It is important for local networks.

► Satellite and Optical Fibre

► Textbook Page 33

Question 69. What is a satellite and how does it work?

Ans. Satellites are man-made objects that can orbit the Earth in space for certain tasks. They receive signals sent from Earth and send them back to another part of Earth. In particular, geostationary satellites are located in specific orbits 36,000 kilometers above Earth, which makes the communication system easy and efficient.

Question 70. Explain the role of satellite in communication.

Ans. Satellites are used to send signals from one end of the Earth to the other. In this method, radio, telephone, mobile phone, or internet signals can be

sent from one end of the Earth to the other. As a result, people can communicate with people on the other side of the world at any time? Through this, people in other countries can learn about the news and culture of that country. Even video calls can be made on mobile phones to communicate with people in other countries. This is how satellites play an important role in communication.

Question 71. Why does a geostationary satellite appear stationary?

Ans. A geostationary satellite appears stationary from Earth because it orbits the Earth at the same speed as the Earth's rotation. Since the Earth rotates at the same speed as the satellite, it seems to us that it is stationary in the same place in the sky.

Question 72. What is a geo-stationary satellite?

Ans. The Earth completes a spin on its axis in twenty-four hours. If a satellite can be made to orbit the Earth once every twenty-four hours, it will seem to the Earth as if it is stationary in one place in the sky. This type of satellite is called a geostationary satellite.

Question 73. When and which satellite did Bangladesh launch?

Ans. Bangladesh launched Bangabandhu Satellite-1 Recently the name of Bangabandhu Satellite-1 has been replaced by Bangladesh Satellite-1 into space on May 12, 2018. With this, Bangladesh became the 57th country in the world to launch a satellite. Bangabandhu Satellite-1 is playing an important role in telecommunication, broadcasting, and disaster management, which has ushered in a new era of technological development in the country.

Question 74. What are the two main problems of satellite communication?

Ans. The two main problems of satellite communication are :

1. Since the satellite is at a very high altitude, large antennas are needed to send signals there, which is expensive and complicated.
2. The signal has to travel a long distance, which causes some delay. Therefore, when talking on the phone, there may be an echo or a slight delay.

Question 75. What are the uses of satellites?

Ans. The uses of satellites are numerous. They are used to send television signals, provide internet connections, monitor weather, create maps, manage communication systems, operate GPS systems, and much more. Basically, satellites are used to establish communication in remote areas and monitor different parts of the world.

Question 76. Give a brief description of optical fiber.

Ans. Optical fiber is a very thin type of plastic glass fiber. After converting sound or electrical energy into light energy, it is sent through optical fiber. The light signal that is sent as an optical signal is infrared light and this light is not visible to our eyes. It is possible to send several lakh telephone calls simultaneously through one optical fiber. Currently, optical fiber communication has become so developed that all countries of the world are connected to each other through a network of optical fibers.

Question 77. Why is communication faster in optical fiber cable than satellite?

Ans. Information is transmitted through light in optical fiber cable, which has a very high speed. On the other hand, for information transmission via satellite, information has to be converted into radio waves and these waves have to be sent to the satellite. Then the satellite receives those waves again and sends them to Earth. This process takes some time. As a result, there is some delay in satellite communication compared to optical fiber cable.

Question 78. What is the difference between communication via satellite and optical fibre?

Ans. The difference between communication via satellite and optical fiber is :

Satellite Communication	Optical Fiber Communication
1. Radio signals are sent through this.	1. Light signals are sent through this.
2. Communication is slower than optical fiber.	2. Communication is possible at the speed of light.

Question 79. Describe the difference between optical fiber and satellite based on characteristics.

Ans. The difference between optical fiber and satellite based on characteristics is described below :

Optical Fiber	Satellite
1. Optical fiber is a very thin type of plastic glass fiber.	1. A satellite is an artificial satellite.
2. Light signals are sent through optical fiber.	2. Satellites send wireless signals.
3. It does not need to be kept in a specific orbit 36,000 kilometers above.	3. The satellite needs to be kept in a specific orbit above 36,000 kilometers.
4. Signals can be sent very quickly through optical fiber.	4. Signals can be sent quickly through satellites, but since the distance is much greater, it takes more time than optical fiber.

Question 80. Which is more effective between satellite and optical fiber? Describe.

Ans. Optical fiber is more effective between satellite and optical fiber.

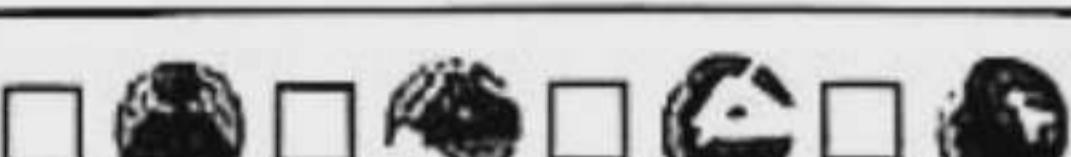
1. Since the satellite is located very high above the Earth, a very large antenna is needed to send signals. Antennas are not needed for optical fiber. Many more signals can be sent underground and even under the sea.
2. It takes more time to exchange signals from Earth to a far distance via satellite. But in optical fiber, optical fiber signals can be sent quickly from one surface of the Earth to another.



Solutions to Textual Activities



Along with textual reference



Activity 01 What are the resources necessary for getting the computers of your school on to network? Make a list. ➤ Textbook Page 22

Type of Activity : Group Activity

Purpose of Activity : To learn about the resources needed to network the computers in the school.

Solution : The resources that may be needed for the school are listed below :

Required Resources
Printer
Fax
Projector
Bluetooth
Various software
Various hardware

Activity 02 Design a poster on topology in groups. ➤ Textbook Page 24

Type of Activity : Group Activity

Purpose of Activity : To get an idea about different types of topology.

Solution : The students of the class were divided into different groups and made posters on topology :

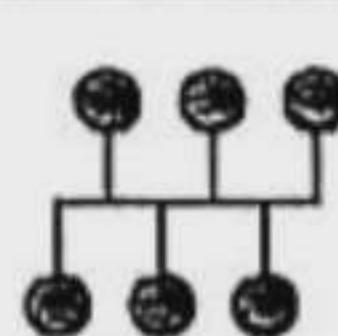


Fig : Bus topology

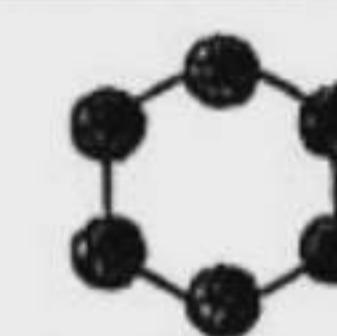


Fig : Ring topology
Topology created by Team 'A'

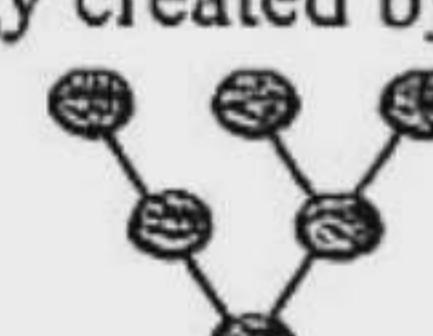


Fig : Tree topology
Topology created by Team 'B'

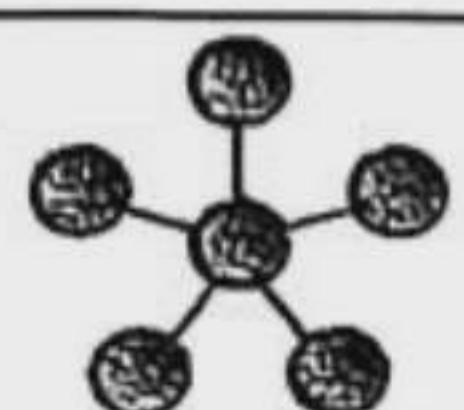


Fig : Star topology
Topology created by Team 'C'

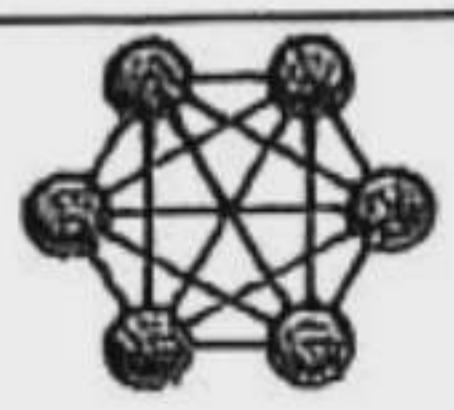


Fig : Mesh topology

Activity 03 Write the use of five networks that are not mentioned here. ➤ Textbook Page 26

Type of Activity : Group Activity

Purpose of Activity : To learn about the uses of networks.

Solution : Five uses of networks that are not mentioned in the book are given below :

1. Computers are used to share various types of hardware resources. For example, printers.
2. Networks are used for various office management tasks.
3. Networks are used to store information.

4. Networks are used to provide information security.
5. Networks are used to exchange data efficiently and quickly.

Activity 04 Make a list of facilities one can avail using network. ➤ Textbook Page 28

Type of Activity : Group Activity

Purpose of Activity : To learn about the facilities of using a computer network.

Answer : A list of the facilities that can be obtained by using a computer network is prepared below :

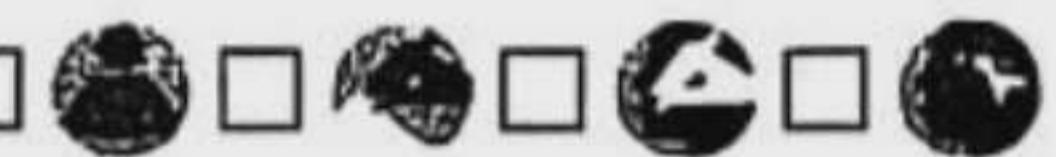
1. Information can be used effectively.
2. Social networks can be built.
3. Telephone calls can be made.
4. Information can be stored in a database.
5. Movies can be watched and songs can be listened to.



Descriptive Q/A



Let's learn for School-based Assessment



Question 1. What is LAN Card? What are uses of Network in IT sectors at present? [Cumilla Board '19].

Ans. The device that is necessary for connecting two or more number of computers together is LAN card.

At present IT sector depends on network. The uses of network in IT sector are given below:

- Centralized management which easy to manage large network,
- Resource sharing like files, folders, printers, etc. can access all the users,
- Centralized data backup,
- Via network, the admin can manage data confidentiality and security,
- The admin can troubleshoot user issues via Remote connection.

Question 2. What is called Network? Describe any two machines related to network.

[Chittogram Board '19; Dhaka; Comilla; Barisal Board '17]

Ans. A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data.

Router : The word 'Router' originated from 'Route'. It is an important device which is the combination of both hardware and software. It is used to create network. Router is used to connect two active networks under the same protocol.

Server : The name indicates that its work is to serve, that is server is a strong computer that provides services to other computers connected to the network.



Super Suggestions



Super Suggestions with 100% preparatory questions selected by the Master Trainer Panel

Dear learners, important multiple choice and short questions of this chapter selected by Master Trainer Panel for Half-Yearly and Annual Exams are presented below. Learn the answers to the mentioned questions well to ensure 100% preparation.

Question Pattern	7★	5★
MCQs with Answers	Learn each MCQs in this chapter thoroughly.	
Short Q/A	1, 6, 11, 15, 18, 24, 28, 39, 43, 51, 61, 67, 75, 80	2, 9, 12, 17, 20, 26, 35, 48, 56, 63, 73

Exclusive Tips ➤ Master the solutions to all the activities in this chapter along with exercise and other Q/A to develop the creative thinking and assess your talent.





Assessment & Evaluation



A question bank presented in the form of a class test to assess the preparation

Class Test

Information & Communication Technology Class : Eight

Marks : 25

Multiple Choice Questions (Each question carries 1 mark)

$1 \times 15 = 15$

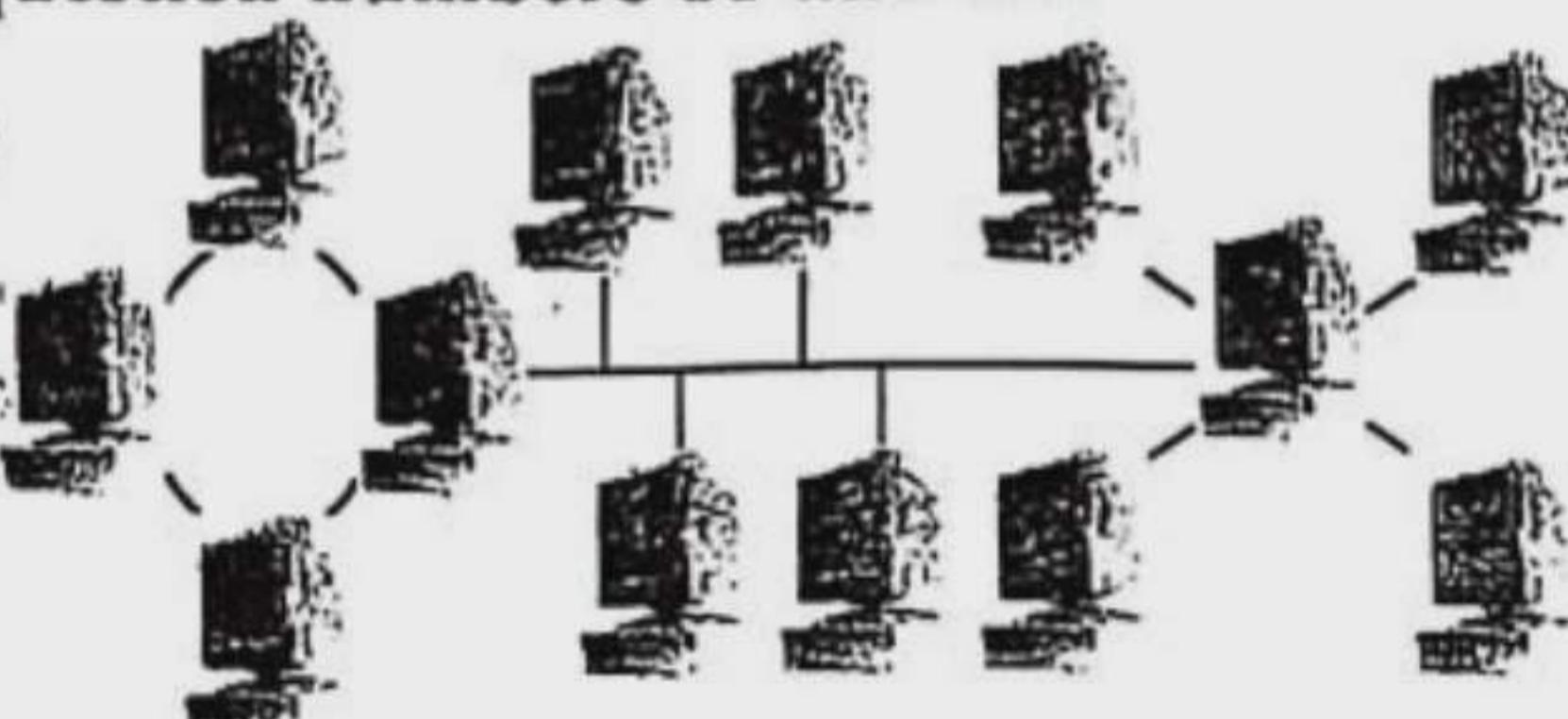
(N.B. : Answer all the questions. Each question carries one mark. Block fully, with a ball-point pen, the circle of the letter that stands for the correct/best answer in the "Answer Sheet" for Multiple Choice Question Type Examination.)

1. Which device receives information from the server?
Ⓐ Router Ⓑ Switch
Ⓒ Client Ⓒ Printer
2. The main objective of network is resource—
Ⓐ receiving Ⓑ giving
Ⓒ Sharing Ⓒ trading
3. Search Engine is —.
i. Pipilika
ii. Google
iii. Yahoo
Which one is correct?
Ⓐ i & ii Ⓑ i & iii Ⓒ ii & iii Ⓓ i, ii & iii
4. Which one is Media?
Ⓐ Router Ⓑ Modem
Ⓒ NIC Ⓒ Optical fiber
5. The thing used to connect the many computer is called —.
Ⓐ server Ⓑ client
Ⓒ media Ⓒ adapter
6. Which network is used to connect the whole country?
Ⓐ WAN Ⓑ MAN
Ⓒ LAN Ⓒ PAN
7. Generally a network is designed within a town is—
Ⓐ MAN Ⓑ PAN
Ⓒ LAN Ⓒ WAN
8. Mainly how many network are there?
Ⓐ 2 Ⓑ 3 Ⓒ 4 Ⓓ 5
9. What is the full form of WAN?
Ⓐ Wide Area Netback Ⓑ Wide Area Network
Ⓒ Wide And Network Ⓒ World Area Network

10. What is the shape of ring topology?

- Ⓐ Like a round circle Ⓑ Like a triangle
Ⓒ Like a four armed Ⓒ Long

Observe the following figure and answer the question numbers 11 and 12 :



11. The topology above picture indicates —.

- Ⓐ ring topology Ⓑ tree topology
Ⓒ mesh topology Ⓒ hybrid topology

12. In the figure the various topology that can be seen in —.

- i. ring topology
ii. bus topology
iii. star topology

Which one of the following is correct?

- Ⓐ i & ii Ⓑ ii & iii Ⓒ i & iii Ⓓ i, ii & iii

13. The origin of the word 'Router' is—

- Ⓐ Root Ⓑ Radio
Ⓒ Route Ⓒ Routing

14. 'Router' has come from which of the following?

- Ⓐ Rout Ⓑ Route
Ⓒ Rutere Ⓒ Ruter

15. Which of the following device can send information to a specific address?

- Ⓐ Hub Ⓑ Router
Ⓒ Switch Ⓒ Modem

Short-Answer Question (Each question carries 2 marks)

Answer any 05 of the following questions :

$2 \times 5 = 10$

1. How is a computer network created?
2. What is a client in a computer network? Explain.
3. List the different types of media used to form a network.
4. Why is a network adapter needed?
5. Write the differences between client and resource.
6. What is protocol? Explain.
7. What is a Personal Area Network?
8. How is a Metropolitan Area Network formed?

✓ Answer Sheet ► Multiple Choice Questions

1	Ⓒ	2	Ⓒ	3	Ⓓ	4	Ⓒ	5	Ⓐ	6	Ⓐ	7	Ⓐ	8	Ⓒ
9	Ⓑ	10	Ⓐ	11	Ⓓ	12	Ⓓ	13	Ⓒ	14	Ⓑ	15	Ⓒ		

✓ Answering Reference ► Short-Answer Questions

- 1 ► See this Chapter, Ques. 01 | 3 ► See this Chapter, Ques. 05 | 5 ► See this Chapter, Ques. 09 | 7 ► See this Chapter, Ques. 13
2 ► See this Chapter, Ques. 03 | 4 ► See this Chapter, Ques. 07 | 6 ► See this Chapter, Ques. 11 | 8 ► See this Chapter, Ques. 15