

CBSE 2024 COMPARTMENT

19. (a) (i) Expand the following terms : 1+1=2
URL, XML

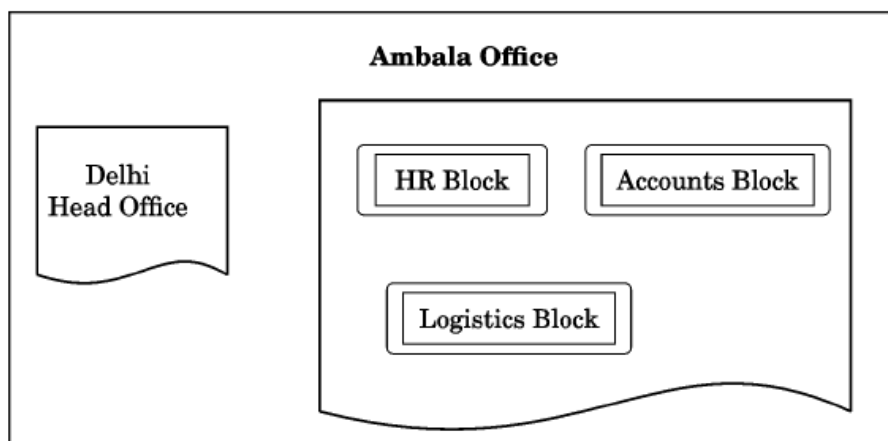
- (ii) Give one difference between **HTTP** and **FTP**.

OR

- (b) (i) Define the term IP address with respect to network.

- (ii) What is the main purpose of a Router ? 1+1=2

33. Logistic Technologies Ltd. is a Delhi based organization which is expanding its office set-up to Ambala. At Ambala office campus, they are planning to have 3 different blocks for HR, Accounts and Logistics related work. Each block has a number of computers, which are required to be connected to a network for communication, data and resource sharing.



As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (v), keeping in mind the distances between various block/locations and other given parameters.

Distances between various blocks/locations :

HR Block to Accounts Blocks	400 meters
Accounts Block to Logistics Block	200 meters
Logistics Block to HR Block	150 meters
Delhi Head Office to Ambala Office	220 Km

Number of computers installed at various blocks are as follows :

HR Block	70
Accounts Block	40
Logistics Block	30

- (i) Suggest the most appropriate block/location to house the SERVER in the Ambala office. Justify your answer.
- (ii) Suggest the best wired medium to efficiently connect various blocks within the Ambala office compound.
- (iii) Draw an ideal cable layout (Block to Block) for connecting these blocks for wired connectivity.
- (iv) The company wants to schedule an online conference between the managers of Delhi and Ambala offices. Which protocol will be used for effective voice communication over the Internet ?
- (v) Which kind of network will it be between Delhi office and Ambala office ?

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19. (A) (i) Expand the following terms : **1 + 1 = 2**

XML, PPP

- (ii) Give one difference between circuit switching and packet switching.

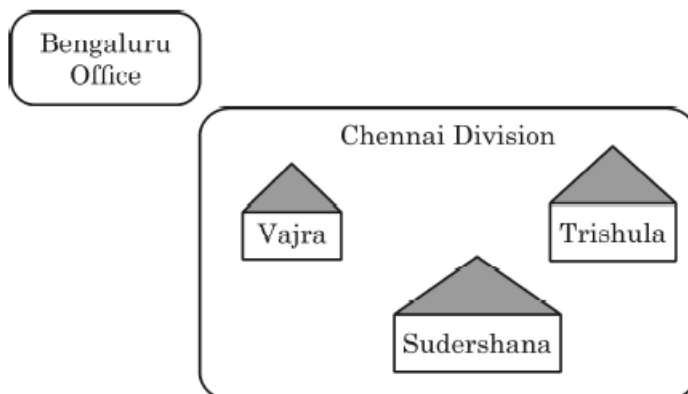
OR

- (B) (i) Define the term web hosting.
(ii) Name any two web browsers.

33. Infotainment Ltd. is an event management company with its prime office located in Bengaluru. The company is planning to open its new division at three different locations in Chennai named as - Vajra, Trishula and Sudershana.

1 × 5 = 5

You, as a networking expert need to suggest solutions to the questions in part (i) to (v), keeping in mind the distances and other given parameters.



Distances between various locations :

Vajra to Trishula	350 m
Trishula to Sudershana	415 m
Sudershana to Vajra	300m
Bengaluru Office to Chennai	2000 km

Number of computers installed at various locations :

Vajra	120
Sudershana	75
Trishula	65
Bengaluru Office	250

- (i) Suggest and draw the cable layout to efficiently connect various locations in Chennai division for connecting the digital devices.
- (ii) Which block in Chennai division should host the server ? Justify your answer.
- (iii) Which fast and effective wired transmission medium should be used to connect the prime office at Bengaluru with the Chennai division ?
- (iv) Which network device will be used to connect the digital devices within each location of Chennai division so that they may communicate with each other ?
- (v) A considerable amount of data loss is noticed between different locations of the Chennai division, which are connected in the network. Suggest a networking device that should be installed to refresh the data and reduce the data loss during transmission to and from different locations of Chennai division.

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- 20.** (a) Write any two differences between Fiber-optic cable and Coaxial cable. 2

OR

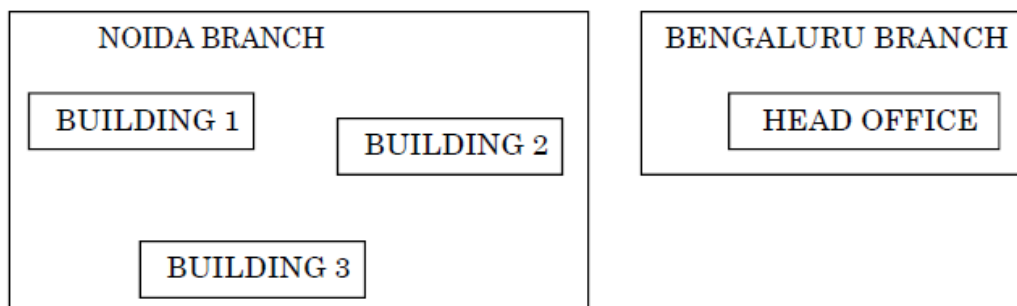
- (b) Write one advantage and one disadvantage of wired over wireless communication. 2

- 23.** (a) Write the full forms of the following : 1

- (i) XML
- (ii) HTTPS

- (b) What is the use of FTP ? 1

31. ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :



Distance between various blocks/locations :

Building	Distance
Building 1 to Building 3	120 m
Building 1 to Building 2	50 m
Building 2 to Building 3	65 m
Noida Branch to Head Office	1500 km

Number of computers

Building	Number of Computers
Building 1	25
Building 2	51
Building 3	150
Head Office	10

- (i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location. 1
- (ii) Suggest the cable layout of connections between the buildings inside the campus. 1
- (iii) Suggest the placement of the following devices with justification : 1
 - Switch
 - Repeater
- (iv) The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same. 1
- (v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same. 1

20. (a) Differentiate between wired and wireless transmission. 2

OR

(b) Differentiate between URL and domain name with the help of an appropriate example. 2

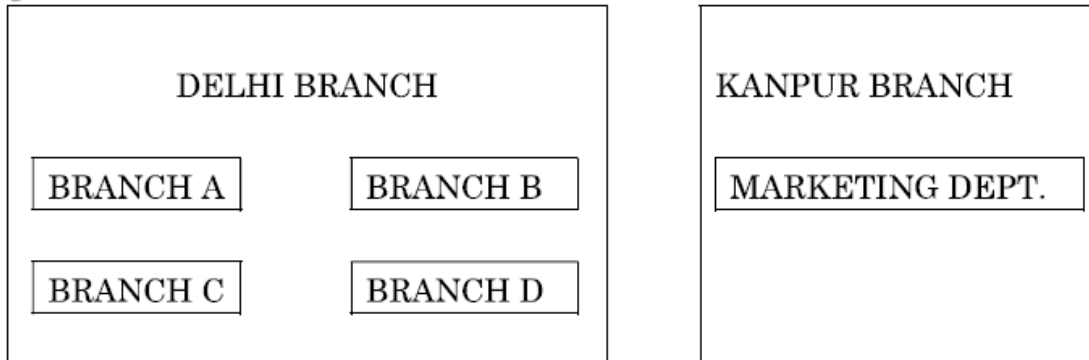
23. (a) Write the full forms of the following : 2

(i) HTML

(ii) TCP

(b) What is the need of Protocols ?

31. Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below :



Distance between various branches is as follows :

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches :

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

(i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.

- (ii) Suggest an ideal layout for connecting all these branches within Delhi. 1
- (iii) Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches ? 1
- (iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed ? Justify your answer. 1
- (v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch. 1

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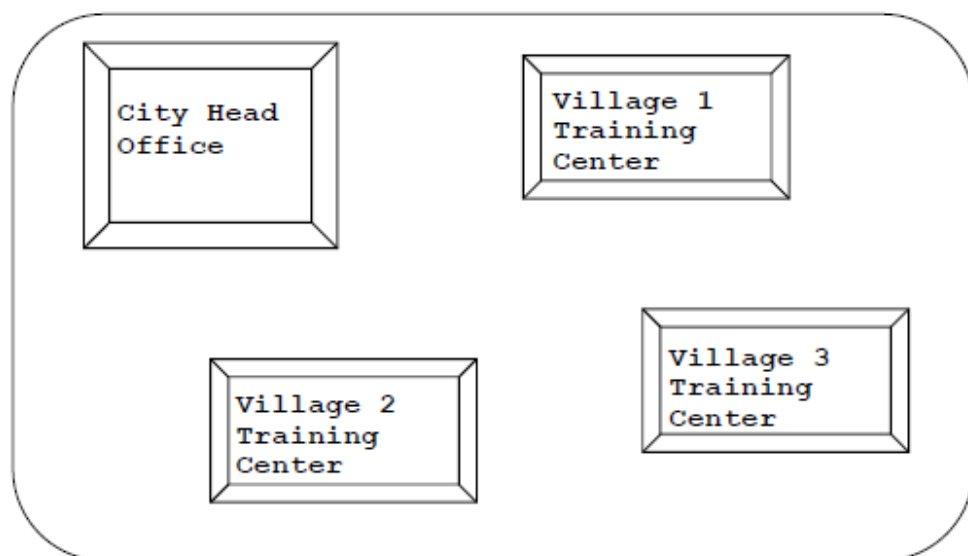
- 1. Differentiate between Push and Pop operations in the context of stacks. 2
 - 2. (a) Expand FTP. 1
 - (b) Out of the following, which has the **largest** network coverage area ? 1
- LAN, MAN, PAN, WAN

- 12. (a) (i) Mention any two characteristics of BUS Topology. 2

OR

- (ii) Differentiate between the terms Domain Name and URL in the context of World Wide Web. 2
 - (b) Write the names of two wired and two wireless data transmission mediums. 2
13. The government has planned to develop digital awareness in the rural areas of the nation. According to the plan, an initiative is taken to set up Digital Training Centers in villages across the country with its Head Office in the nearest cities. The committee has hired a networking consultancy to create a model of the network in which each City Head Office is connected to the Training Centers situated in 3 nearby villages.
- As a network expert in the consultancy, you have to suggest the best network-related solutions for the issues/problems raised in (a) to (d), keeping in mind the distance between various locations and other given parameters. 4

Layout of the City Head Office and Village Training Centers :



Shortest distances between various Centers :

Village 1 Training Center to City Head Office	2 KM
Village 2 Training Center to City Head Office	1.5 KM
Village 3 Training Center to City Head Office	3 KM
Village 1 Training Center to Village 2 Training Center	3.5 KM
Village 1 Training Center to Village 3 Training Center	4.5 KM
Village 2 Training Center to Village 3 Training Center	3.5 KM

Number of Computers installed at various centers are as follows :

Village 1 Training Center	10
Village 2 Training Center	15
Village 3 Training Center	15
City Head Office	100

- (a) It is observed that there is a huge data loss during the process of data transfer from one village to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one village with another to refresh the signal and forward it ahead.
- (i) MODEM
 - (ii) ETHERNET CARD
 - (iii) REPEATER
 - (iv) HUB
- (b) Draw the cable layout (location-to-location) to efficiently connect various Village Training Centers and the City Head Office for the above shown layout.
- (c) Which hardware networking device, out of the following, will you suggest to connect all the computers within the premises of every Village Training Center ?
- (i) SWITCH
 - (ii) MODEM
 - (iii) REPEATER
 - (iv) ROUTER
- (d) Which protocol, out of the following, will be most helpful to conduct online interactions of Experts from the City Head Office and people at the three Village Training Centers ?
- (i) FTP
 - (ii) PPP
 - (iii) SMTP
 - (iv) VoIP

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2. (i) Expand the following : 1
- VoIP, PPP**
- (ii) Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth technology to connect two devices. Which type of network (PAN/LAN/MAN/WAN) will be formed in this case ? 1

12. (i) Differentiate between Bus Topology and Tree Topology. Also, write one advantage of each of them. **2**

OR

Differentiate between HTML and XML.

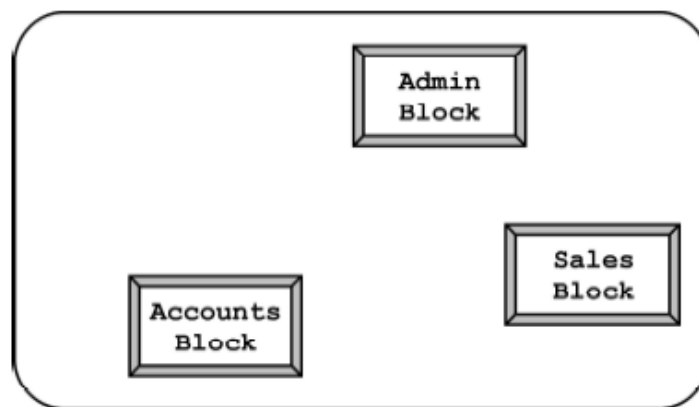
- (ii) What is a web browser ? Write the names of any two commonly used web browsers. **2**

13. Galaxy Provider Ltd. is planning to connect its office in Texas, USA with its branch at Mumbai. The Mumbai branch has 3 Offices in three blocks located at some distance from each other for different operations – ADMIN, SALES and ACCOUNTS.

4

As a network consultant, you have to suggest the best network related solutions for the issues/problems raised in (a) to (d), keeping in mind the distances between various locations and other given parameters.

Layout of the Offices in the Mumbai branch :



Shortest distances between various locations :

ADMIN Block to SALES Block	300 m
SALES Block to ACCOUNTS Block	175 m
ADMIN Block to ACCOUNTS Block	350 m
MUMBAI Branch to TEXAS Head Office	14000 km

Number of Computers installed at various locations are as follows :

ADMIN Block	255
ACCOUNTS Block	75
SALES Block	30
TEXAS Head Office	90

- (a) It is observed that there is a huge data loss during the process of data transfer from one block to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one block office with another to refresh the signal and forward it ahead.
- (i) MODEM (ii) ETHERNET CARD
(iii) REPEATER (iv) HUB
- (b) Which hardware networking device out of the following, will you suggest to connect all the computers within each block ?
- (i) SWITCH (ii) MODEM
(iii) REPEATER (iv) ROUTER
- (c) Which service/protocol out of the following will be most helpful to conduct live interactions of employees from Mumbai Branch and their counterparts in Texas ?
- (i) FTP (ii) PPP
(iii) SMTP (iv) VoIP
- (d) Draw the cable layout (block to block) to efficiently connect the three offices of the Mumbai branch.