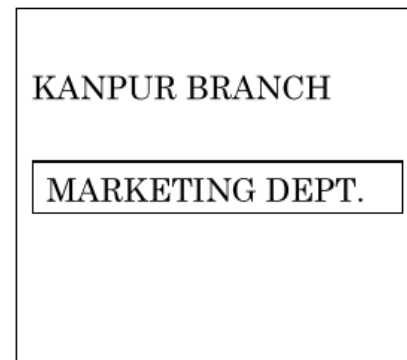
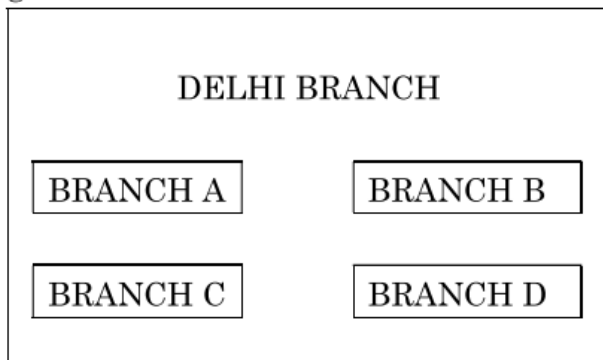


13. Fill in the blank : 1
_____ is used for point-to-point communication or unicast communication such as radar and satellite.
- (a) INFRARED WAVES (b) BLUETOOTH
(c) MICROWAVES (d) RADIOWAVES
20. (a) Differentiate between wired and wireless transmission. 2
OR
(b) Differentiate between URL and domain 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 ?

SECTION – D

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. 1

- (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

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

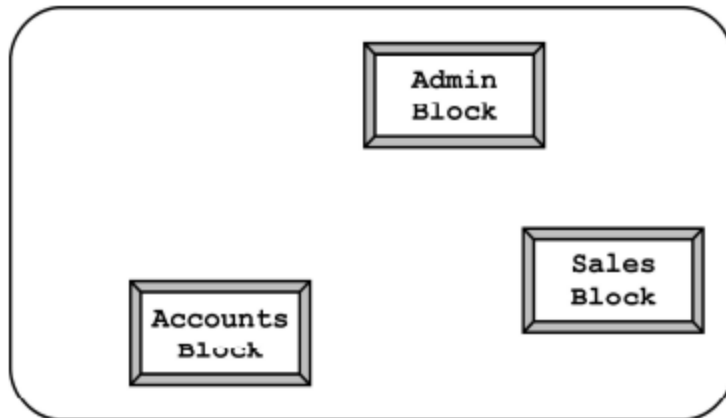
Differentiate between HTML and XML.

- (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

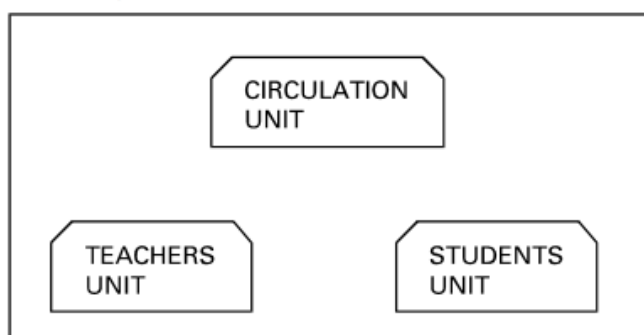
9. In context of Communication Networks, which of the following is the correct expansion for the abbreviation PAN : 1
- (A) Prime Area Network
 - (B) Post Application Network
 - (C) Picture Application Network
 - (D) Personal Area Network
10. In context of Cyber Crimes and Cyber Thefts, the term IPR refers to : 1
- (A) Internet Protocol Rights
 - (B) Inter Personnel Rights
 - (C) Intellectual Property Rights
 - (D) Individual Property Rights
15. Which of the following wireless transmission media is best suited for MAN ? 1
- (A) Microwave
 - (B) Radio Link
 - (C) Infrared
 - (D) Bluetooth
20. Which of the following statements correctly explains the term Firewall in context of Computer Network Society ?
- (A) A device that protects the computer network from catching fire.
 - (B) A device/software that controls incoming and outgoing network traffic.
 - (C) Using abusive language on a social network site.
 - (D) Stealing someone's text and submitting it as his/her own work.
21. Which of the following protocols allows the use of HTML on the World Wide Web ?
- (A) HTTP
 - (B) PPP
 - (C) FTP
 - (D) POP

25. (a) What are cookies in a web browser ? Write one advantage and one disadvantage of enabling cookies in a web browser. 2

OR

- (b) Differentiate between the terms Domain Name and URL in context of web services. Also write one example of each to illustrate the difference. 2
26. Expand the following terms in context of Computer Networks : 2
- (a) PPP
- (b) VoIP
- (c) GSM
- (d) WLL

38. A school library is connecting computers in its units in a LAN. The library has 3 units as shown in the diagram below : 5



The three units are providing the following services :

1. Teachers Unit : For access of the Library Books by teachers
2. Students Unit : For access of the Library Books by Students
3. Circulation Unit : For issue and return of books for teachers and students

Centre to Centre distances between the 3 units are as follows :

- Circulation Unit to Teachers Unit – 20 metres
- Circulation Unit to Students Unit – 30 metres
- Teachers Unit to Students Unit – 10 metres

Number of computers in each of the units is as follows :

- Circulation Unit 15
- Teachers Unit 10
- Students Unit 10

Computer Networking

- (a) Suggest the most suitable place (i.e. the Unit name) to install the server of this Library with a suitable reason.
- (b) Suggest an ideal layout for connecting these Units for a wired connectivity.
- (c) Which device will you suggest to be installed and where should it be placed to provide Internet connectivity to all the Units ?
- (d) Suggest the type of the most efficient and economical wired medium for connecting all the computers in the network.
- (e) The university is planning to connect the Library with the School Principal's computer which is in his office at a distance of 50 metres. Which type of network out of LAN, MAN or WAN will be used for the network ? Justify your answer.

3. Fill in the blanks from questions 3(a) to 3(d).

- (a) Computers connected by a network across different cities is an example of _____ . 1
- (b) _____ is a network tool used to test the download and upload broadband speed. 1
- (c) A _____ is a networking device that connects computers in a network by using packet switching to receive, and forward data to the destination. 1
- (d) _____ is a network tool used to determine the path packets taken from one IP address to another. 1
- (e) Write the full form of the following abbreviations : 2
- (i) POP
 - (ii) VoIP
 - (iii) NFC
 - (iv) FTP

- (f) Match the ServiceNames listed in the first column of the following table with their corresponding features listed in the second column of the table :

2

Technology	Feature
1G	<ul style="list-style-type: none">• IP based Protocols (LTE)• True Mobile Broadband
2G	<ul style="list-style-type: none">• Improved Data Services with Multimedia• Mobile Broadband
3G	<ul style="list-style-type: none">• Basic Voice Services• Analog-based Protocol
4G	<ul style="list-style-type: none">• Better Voice Services• Basic Data Services• First Digital Standards (GSM, CDMA)

- (g) What is a secure communication ? Differentiate between HTTP and HTTPS.

3

- (h) Helping Hands is an NGO with its head office at Mumbai and branches located at Delhi, Kolkata and Chennai. Their Head Office located at Delhi needs a communication network to be established between the head office and all the branch offices. The NGO has received a grant from the national government for setting up the network. The physical distances between the branch offices and the head office and the number of computers to be installed in each of these branch offices and the head office are given below. You, as a network expert, have to suggest the best possible solutions for the queries as raised by the NGO, as given in (i) to (iv).

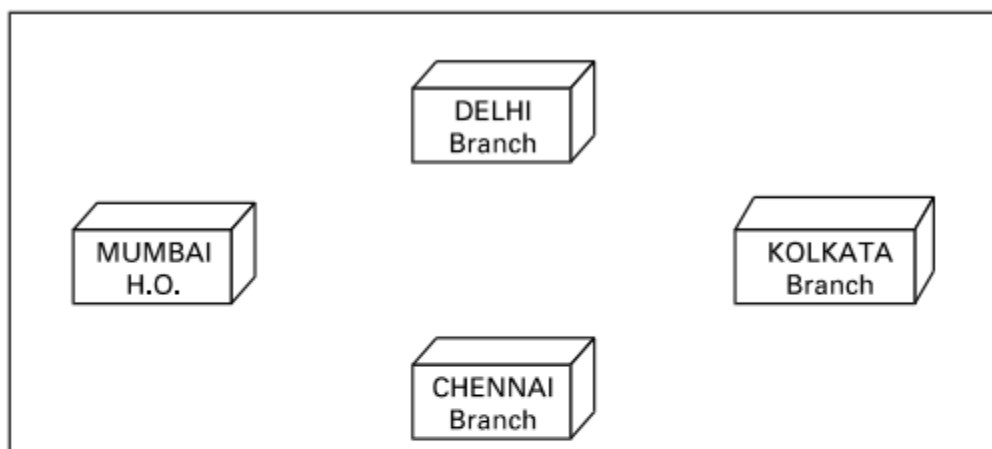
Computer Networking

Distances between various locations in Kilometres :

Mumbai H.O. to Delhi	1420
Mumbai H.O. to Kolkata	1640
Mumbai H.O. to Chennai	2710
Delhi to Kolkata	1430
Delhi to Chennai	1870
Chennai to Kolkata	1750

Number of computers installed at various locations are as follows :

Mumbai H.O.	2500
Delhi branch	1200
Kolkata branch	1300
Chennai branch	1100



- (i) Suggest by drawing the best cable layout for effective network connectivity of all the Branches and the Head Office for communicating data. 1
- (ii) Suggest the most suitable location to install the main server of this NGO to communicate data with all the offices. 1

- (iii) Write the name of the type of network out of the following, which will be formed by connecting all the computer systems across the network : 1
- (A) WAN
 - (B) MAN
 - (C) LAN
 - (D) PAN
- (iv) Suggest the most suitable medium for connecting the computers installed across the network out of the following : 1
- (A) Optical fibre
 - (B) Telephone wires
 - (C) Radio waves
 - (D) Ethernet cable
5. (a) An organisation purchases new computers every year and dumps the old ones into the local dumping yard. Write the name of the most appropriate category of waste that the organisation is creating every year, out of the following options : 1
- (i) Solid Waste
 - (ii) Commercial Waste
 - (iii) E-Waste
 - (iv) Business Waste
- (b) Data which has no restriction of usage and is freely available to everyone under Intellectual Property Rights is categorised as 1
- (i) Open Source
 - (ii) Open Data
 - (iii) Open Content
 - (iv) Open Education
- (c) What is a Unique Id ? Write the name of the Unique Identification provided by Government of India for Indian Citizens. 2

- (d) Consider the following scenario and answer the questions which follow : 2
- “A student is expected to write a research paper on a topic. The student had a friend who took a similar class five years ago. The student asks his older friend for a copy of his paper and then takes the paper and submits the entire paper as his own research work.”
- (i) Which of the following activities appropriately categorises the act of the writer ?
- (A) Plagiarism
 - (B) Spamming
 - (C) Virus
 - (D) Phishing
- (ii) Which kind of offense out of the following is made by the student ?
- (A) Cyber Crime
 - (B) Civil Crime
 - (C) Violation of Intellectual Property Rights
- (e) What are Digital Rights ? Write examples for two digital rights applicable to usage of digital technology. 2
- (f) Suggest techniques which can be adopted to impart Computer Education for
- (i) Visually impaired students (someone who cannot write).
 - (ii) Speech impaired students (someone who cannot speak). 2

CBSE Paper 2019

7. (a) Damodar Mohan has been informed that there had been a backdoor entry to his computer, which has provided access to his system through a malicious user/programs, allowing confidential and personal information to be subjected to theft. It happened because he clicked a link provided in one of the pop-ups from a website announcing him to be winner of prizes worth 1 Million Dollars. Which of the following has caused this out of the following ?
- (i) Virus
 - (ii) Worm
 - (iii) Trojan Horse

Also, mention, what he should do to prevent this infection.

2

- (b) Tarini Wadhawa is in India and she is interested in communicating with her uncle in Australia. She wants to show one of her own designed gadgets to him and also wants to demonstrate its working without physically going to Australia. Which protocol out of the following will be ideal for the same ? 1
- (i) POP3
 - (ii) SMTP
 - (iii) VoIP
 - (iv) HTTP
- (c) Give two differences between 3G and 4G telecommunication technologies. 1
- (d) Write the expanded names for the following abbreviated terms used in Networking and Communications : 2
- (i) MBPS
 - (ii) WAN
 - (iii) CDMA
 - (iv) WLL

- (e) Jonathan and Jonathan Training Institute is planning to set up its centre in Amritsar with four specialised blocks for Medicine, Management, Law courses alongwith an Admission block in separate buildings. The physical distances between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries as raised by their board of directors as given in (i) to (iv).

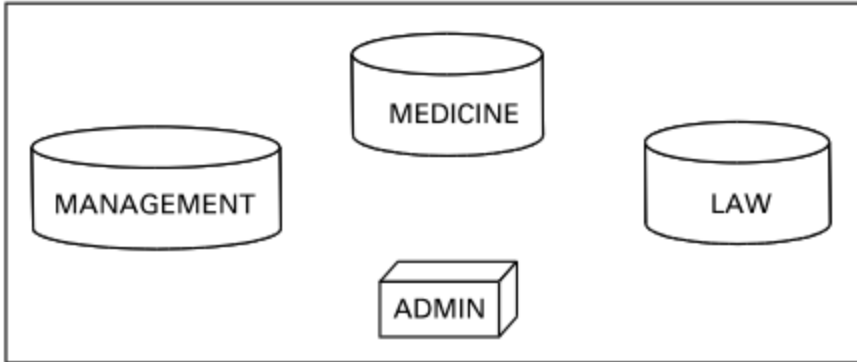
Shortest distances between various locations in metres :

Admin Block to Management Block	60
Admin Block to Medicine Block	40
Admin Block to Law Block	60
Management Block to Medicine Block	50
Management Block to Law Block	110
Law Block to Medicine Block	40

Number of Computers installed at various locations are as follows :

Number of Computers installed at various locations are as follows :

Admin Block	150
Management Block	70
Medicine Block	20
Law Block	50



Computer Networking

- (i) Suggest the most suitable location to install the main server of this institution to get efficient connectivity. *1*
- (ii) Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following : *1*
- Modem
 - Switch
 - Gateway
 - Router
- (iii) Suggest by drawing the best cable layout for effective network connectivity of the blocks having server with all the other blocks. *1*
- (iv) Suggest the most suitable wired medium for efficiently connecting each computer installed in every building out of the following network cables : *1*
- Co-axial Cable
 - Ethernet Cable
 - Single Pair Telephone Cable

CBSE Paper 2018

7. (a) Differentiate between Bus Topology and Star Topology of Networks. What are the advantages and disadvantages of Star Topology over Bus Topology ? 2
- (b) Classify each of the following Web Scripting as Client Side Scripting and Server Side Scripting : 2
- (i) Java Scripting
 - (ii) ASP
 - (iii) VB Scripting
 - (iv) JSP
- (c) Write the expanded names for the following abbreviated terms used in Networking and Communications : 2
- (i) SMTP
 - (ii) VoIP
 - (iii) GSM
 - (iv) WLL

(d) CASE STUDY BASED QUESTION :

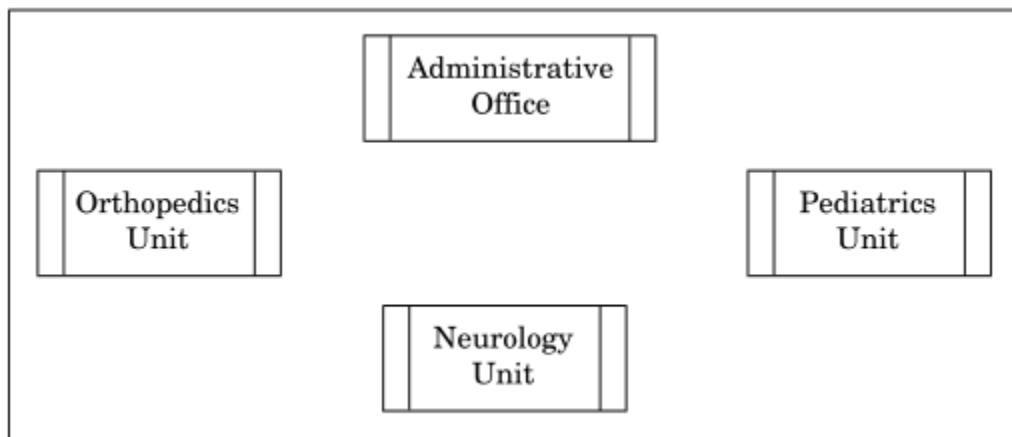
Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialised departments for Orthopedics, Neurology and Pediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. You, as a network expert, have to answer the queries as raised by them in (i) to (iv).

Shortest distances between various locations in metres :

Administrative Office to Orthopedics Unit	55
Neurology Unit to Administrative Office	30
Orthopedics Unit to Neurology Unit	70
Pediatrics Unit to Neurology Unit	50
Pediatrics Unit to Administrative Office	40
Pediatrics Unit to Orthopedics Unit	110

Number of Computers installed at various locations are as follows :

Pediatrics Unit	40
Administrative Office	140
Neurology	50
Orthopedics Unit	80

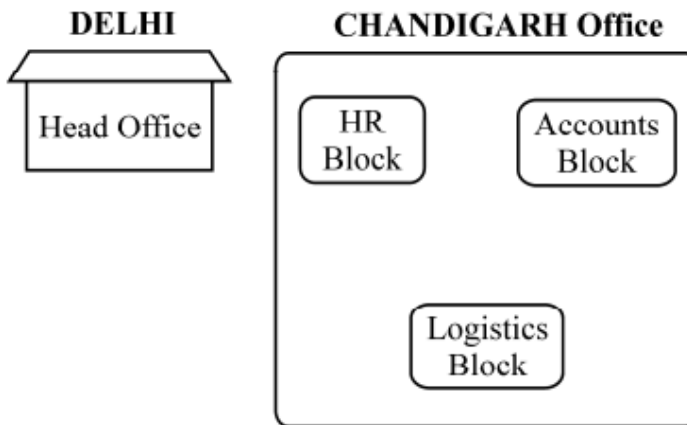


- (i) Suggest the most suitable location to install the main server of this institution to get efficient connectivity. *1*
- (ii) Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings. *1*
- (iii) Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following : *1*
- Gateway
 - Modem
 - Switch
- (iv) Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following : *1*
- Topologies : Bus Topology, Star Topology
- Network Cable : Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable

7. (a) Differentiate between Radio Link and Microwave in context of wireless communication technologies. **2**
- (b) Amit used a pen drive to copy files from his friend's laptop to his office computer. Soon his office computer started abnormal functioning. Sometimes it would restart by itself and sometimes it would stop functioning totally. Which of the following options out of (i) to (iv), would have caused the malfunctioning of the computer ?
Justify the reason for your chosen option : **2**
- (i) Computer Worm
 - (ii) Computer Virus
 - (iii) Computer Bacteria
 - (iv) Trojan Horse
- (c) Jai is an IT expert and a freelancer. He recently used his skills to access the Administrator password for the network server of Megatech Corpn Ltd. and provided confidential data of the organization to its Director, informing him about the vulnerability of their network security. Out of the following options (i) to (iv), which one most appropriately defines Jai ? **2**
Justify the reason for your chosen option :
- (i) Hacker
 - (ii) Cracker
 - (iii) Operator
 - (iv) Network Admin

- (d) Hi Speed Technologies Ltd. is a Delhi based organization which is expanding its office setup to Chandigarh. At Chandigarh office campus, they are planning to have 3 different blocks for HR, Accounts and Logistics related work. Each block has number of computers, which are required to be connected in 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 (iv), keeping in mind the distances between various blocks / locations and other given parameters.



Shortest distances between various blocks/locations :

HR Block to Accounts Block	400 metres
Accounts Block to Logistics Block	200 metres
Logistics Block to HR Block	150 metres
DELHI Head Office to CHANDIGARH Office	270 km

Number of Computers installed at various blocks are as follows :

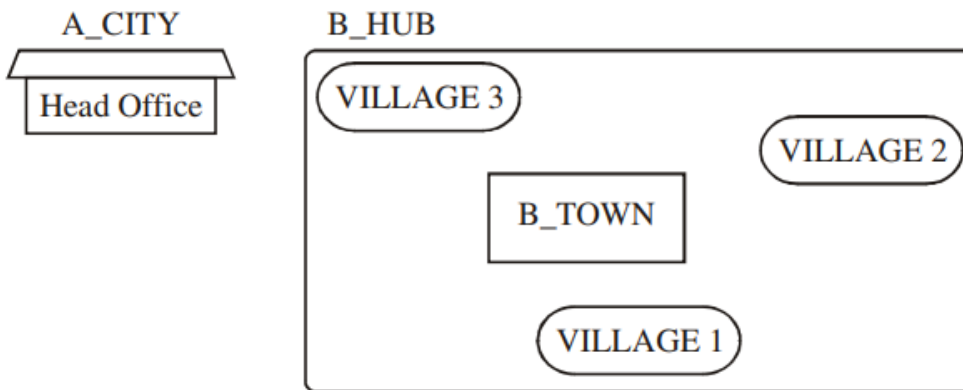
HR Block	70
Accounts Block	50
Logistics Block	40

- (i) Suggest the most appropriate block/location to house the SERVER in the CHANDIGARH Office (out of the 3 blocks) to get the best and effective connectivity. Justify your answer. **1**
- (ii) Suggest the best wired medium and draw the cable layout (Block to Block) to efficiently connect various Blocks within the CHANDIGARH office compound. **1**
- (iii) Suggest a device / software and its placement that would provide data security for the entire network of CHANDIGARH office. **1**
- (iv) Which of the following kind of network, would it be ? **1**
- (a) PAN
 - (b) WAN
 - (c) MAN
 - (d) LAN

7. (a) Give two examples of PAN and LAN type of networks. **1**
- (b) Which protocol helps us to browse through web pages using internet browsers ?
Name any one internet browser. **1**
- (c) Write two advantages of 4G over 3G Mobile Telecommunication Technologies in terms of speed and services. **1**
- (d) Write two characteristics of Web 2.0. **1**
- (e) What is the basic difference between Trojan Horse and Computer Worm ? **1**
- (f) Categorise the following under Client Side and Server Side script category : **1**
- (i) VB Script
 - (ii) ASP
 - (iii) JSP
 - (iv) JavaScript

- (g) Uplifting Skills Hub India is a knowledge and skill community which has an aim to uplift the standard of knowledge and skills in the society. It is planning to setup its training centers in multiple towns and villages pan India with its head offices in the nearest cities. They have created a model of their network with a city, a town and 3 villages as follows.

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



Shortest distances between various locations :

VILLAGE 1 to B_TOWN	2 KM
VILLAGE 2 to B_TOWN	1.0 KM
VILLAGE 3 to B_TOWN	1.5 KM
VILLAGE 1 to VILLAGE 2	3.5 KM
VILLAGE 1 to VILLAGE 3	4.5 KM
VILLAGE 2 to VILLAGE 3	2.5 KM
A_CITY Head Office to B_HUB	25 KM

Number of Computers installed at various locations are as follows :

B_TOWN	120
VILLAGE 1	15
VILLAGE 2	10
VLLAGE 3	15
A_CITY OFFICE	6

Note :

- In Villages, there are community centers, in which one room has been given as training center to this organization to install computers.
 - The organization has got financial support from the government and top IT companies.
- (i) Suggest the most appropriate location of the SERVER in the B_HUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer. **1**
- (ii) Suggest the best wired medium and draw the cable layout (location to location) to efficiently connect various locations within the B_HUB. **1**
- (iii) Which hardware device will you suggest to connect all the computers within each location of B_HUB ? **1**
- (iv) Which service/protocol will be most helpful to conduct live interactions of Experts from Head Office and people at all locations of B_HUB ? **1**

CBSE Paper 2015

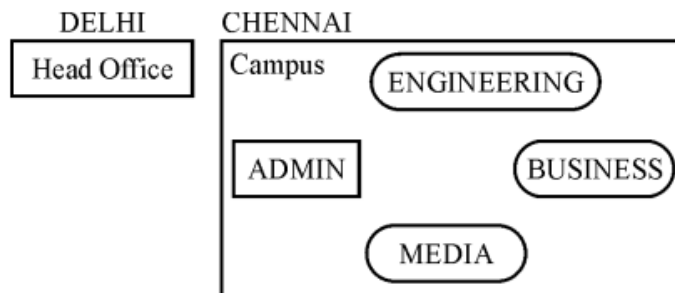
7. (a) Illustrate the layout for connecting 5 computers in a Bus and a Star topology of Networks. **1**
- (b) What is a spam mail ? **1**
- (c) Differentiate between ftp and http. **1**
- (d) Out of the following, which is the fastest (i) wired and (ii) wireless medium of communication ?
Infrared, Coaxial Cable, Ethernet Cable, Microwave, Optical Fiber **1**
- (e) What is Worm ? How is it removed ? **1**

(f) Out of the following, which all comes under cyber crime ? 1

- (i) Stealing away a brand new computer from a showroom.
- (ii) Getting in someone's social networking account without his consent and posting pictures on his behalf to harass him.
- (iii) Secretly copying files from server of a call center and selling it to the other organization.
- (iv) Viewing sites on a internet browser.

(g) Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA.

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (iv), keeping in mind the distances between the buildings and other given parameters.



Shortest distances between various buildings :

ADMIN to ENGINEERING	55 m
ADMIN to BUSINESS	90 m
ADMIN to MEDIA	50 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	50 m
BUSINESS to MEDIA	45 m
DELHI Head Office to CHENNAI Campus	2175 km

Number of Computers installed at various buildings are as follows :

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI Head Office	20

Computer Networking

- (i) Suggest the most appropriate location of the server inside the CHENNAI campus (out of the 4 buildings), to get the best connectivity for maximum no. of computers. Justify your answer. **1**
- (ii) Suggest and draw the cable layout to efficiently connect various buildings within the CHENNAI campus for connecting the computers. **1**
- (iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus ? **1**
- (iv) Which of the following will you suggest to establish the online face-to-face communication between the people in the Admin Office of CHENNAI campus and DELHI Head Office ? **1**
- (a) Cable TV
 - (b) Email
 - (c) Video Conferencing
 - (d) Text Chat