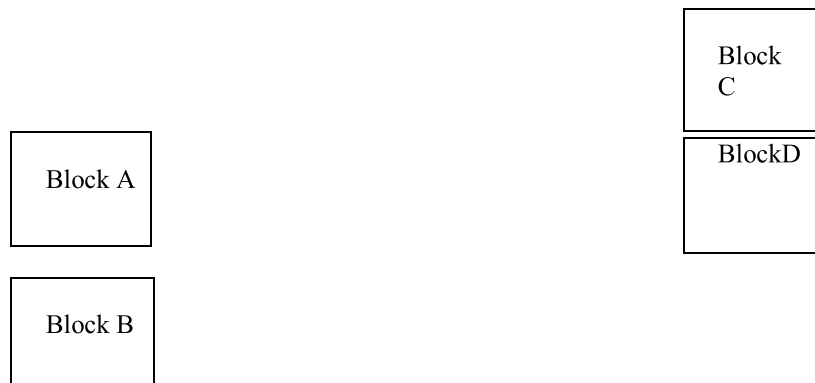
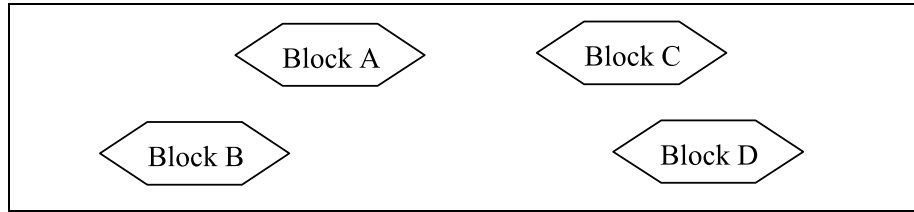


Networking and Communication

- 1 King Soft Organization has set up its new center at Mumbai for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below.



- a) Suggest a cable layout of connections between the blocks.
 - b) Suggest the most suitable place(i.e.block) to house the server of this organization with a suitable reason.
 - c) Suggest the placement of the following devices with justification.
 - a. Repeater
 - b. Hub/Switch
 - d) The organization is planning to link its front office situated in the city in a
 - e) Hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed.
- 2 Knowledge supplement Organization has set up its new center at Mangalore for its office and web based activities. It has 4 Blocks of buildings as shown in the diagram below:



Center to center distance between various blocks

Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

- i. Suggest a most suitable cable layout of connections between the Blocks.
- ii. Suggest the most suitable places (i.e. Block) to house the server of this organization with a suitable reason.
- iii. Suggest the placement of the following devices with justification:
 - a. Repeater
 - b. Hub/Switch

The organization is planning to link its head office situated in City in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?

- 3 TKM Centenary public school in Kollam is setting up the network between its different wings. There are four wings named as Seniors (S), Kids (K), Juniors (J) and Hostel (H). Distance between various buildings is given below:

Wing K to S	100m
Wing K to J	200m
Wing K to H	400m
Wing S to J	300m
Wing S to H	100m
Wing J to H	450m

Wing K	10 Computers
Wing J	100 Computers
Wing H	50 Computers
Wing S	200 Computers

- (i) Suggest a valid topology for networking the computer of all wings
- (ii) Name the wing where the server to be installed. Justify your answer.
- (iii) Suggest the placement of Hub or Switch in the network.
- (iv) Suggest a most suitable cable layout of connections between the wings.

- 3 JCT Industries has set up its new center at Chohal for its office and web based activities. The company compound has 4 blocks as shown in the diagram below:





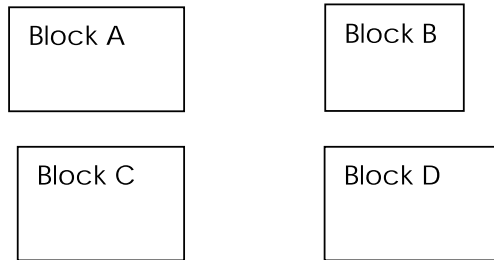
Center to center distances between various blocks is as follows:

- Block A to Block B 50 m
- Block B to Block C 130 m
- Block C to Block D 70 m
- Block A to Block D 180 m
- Block B to Block D 160 m
- Block A to Block C 80 m

Number of Computers in each of the blocks is as follows:

- Block A 30
- Block B 60
- Block C 135
- Block D 15

- 1) Suggest a cable layout of connections between the blocks.
 - 2) Suggest the most suitable place (i.e.block) to house the server of this company with a suitable reason.
 - 3) Suggest the placement of the following devices with justification:
 - (i) Repeater
 - (ii) Switch/Hub
 - 4) Mention the economic technology to provide internet accessibility to all blocks.
- ABC Organization has set up its new center at Gurgaon for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below.



The distances between the building are as :

- Block A to Block C- 120 meters
- Block A to Block B- 20 meters
- Block A to Block D- 550 meters
- Block B to Block D- 80 meters
- Block D to Block C- 110 meters

Block B to Block C- 280 meters

The number of computers in each Block are as follows:

- Block A - 120
- Block B - 180
- Block C - 20
- Block D - 110

- (i) Suggest a cable layout of connections between the blocks and type of cable.
- (ii) Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason.
- (iii) Suggest the placement of the following devices with justification.
 1. Repeater
 2. Hub/Switch

The organization is planning to link its front office situated in the city in a Hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed.

- 5 Indian Industries has the following four buildings in Chennai.
Distance between various wings is given below:



Wing II 1 to Wing II 3	70m
Wing II 1 to Wing II 2	20m
Wing II 1 to Wing II 4	115m
Wing II 3 to Wing II 4	30m
Wing II 2 to Wing II 3	25m

Number of Computers

Wing II 1	35
Wing II 2	25
Wing II 3	80
Wing II 4	60

- i. Suggest suitable CABLE LAYOUTS FOR THESE BUILDINGS.
- ii. Name the wing where the Server is to be installed.
Justify your answer.
- iii. Suggest the placement of Hub/Switch in the network.
- iv. Mention an economic technology to provide Internet accessibility to all wings.

- 6 Hindustan Connecting World Association” is planning to start their offices in four major cities in India to provide regional IT infrastructure support in the field of Education & Culture. The company has planned to set up their head office in New Delhi in three locations and have named their New Delhi offices as “Sales Office”, “Head Office” and “Tech Office”. The company’s regional offices are located at “Coimbatore”, “Kolkata” and “Ahmedabad”.
A rough layout of the same is as follows:
Approximate distances between these offices as per network survey team is as follows:

Place From	Place To	Distance
Head Office	Sales Office	10 KM
Head Office	Tech Office	70 Meter
Head Office	Kolkata Office	1291 KM
Head Office	Ahmedabad Office	790 KM
Head Office	Coimbatore Office	1952 KM

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Head Office	100
Sales Office	20
Tech Office	50
Kolkata Office	50
Ahmedabad Office	50
Coimbatore Office	50

(i) Suggest network type (out of LAN, MAN, WAN) for connecting each of the following set of their offices:

- Head Office and Tech Office
- Head Office and Coimbatore Office

(ii) Which device will you suggest to be procured by the company for connecting all the computers within each of their offices out of the following devices?

- Modem
- Telephone
- Switch/ Hub

(iii) Which of the following communication media, will you suggest to be procured by the company for connecting their local offices in New Delhi for ver effective and fast communication?

- Ethernet Cable
- Optical Fiber
- Telephone Cable

(iv) Suggest a cable/ wiring layout for connecting the company’s local offices located in New Delhi. Also, suggest an effective method/ technology for connecting the company’s regional offices at “Kolkata”, “Coimbatore” and “Ahmedabad”.