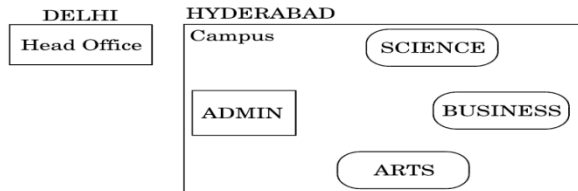


4 Marks Questions

1. Xcelencia Edu Services Ltd. is an educational organization. It is planning to set up its India campus at Hyderabad with its head office at Delhi. The Hyderabad campus has 4 main buildings - ADMIN, SCIENCE, BUSINESS and ARTS. 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 SCIENCE	65 m
ADMIN to BUSINESS	100 m
ADMIN to ARTS	60 m
SCIENCE to BUSINESS	75 m
SCIENCE to ARTS	60 m
BUSINESS to ARTS	50 m
DELHI Head Office to HYDERABAD Campus	1600 Km

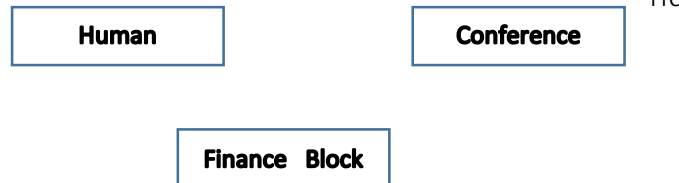


Number of computers installed at various buildings are as follows :

ADMIN	100
SCIENCE	85
BUSINESS	40
ARTS	12
DELHI Head Office	20

- Suggest the most appropriate location of the server inside the HYDERABAD campus (out of the 4 buildings), to get the best connectivity for maximum number of computers. Justify your answer.
 - Suggest and draw the cable layout to efficiently connect various buildings within the HYDERABAD campus for connecting the computers.
 - 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 ?
 - Specify protocol to establish the online face-to-face communication between the people in the Admin Office of HYDERABAD campus and DELHI Head Office ?
 - Suggest and placement of the following devices with reasons
 - Repeater
 - Switch
2. Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub Hyderabad. As a network advisor, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (iv) below.

Physical locations of the blocks of



Block to block distance (in m.)

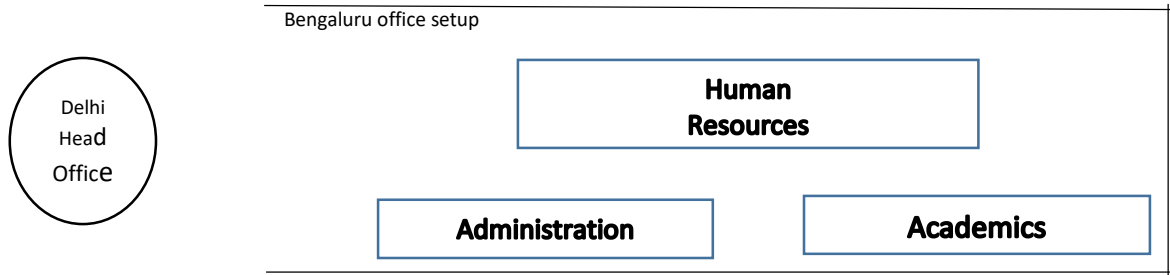
(Block From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers to be installed in each block

Block	Computers
Human Resource	25
Finance	120
Conference	90

- What will be the most appropriate block, where TTC should plan to install their server?
- Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
- What will be the most possible connectivity out of the following, you will suggest to connect the new setup of offices in Bangalore with its London based office.
 - Satellite Link
 - Ethernet
 - Infrared
- Which of the following device will be suggested by you to connect each computer in each of the buildings?
 - Switch
 - Modem
 - Gateway

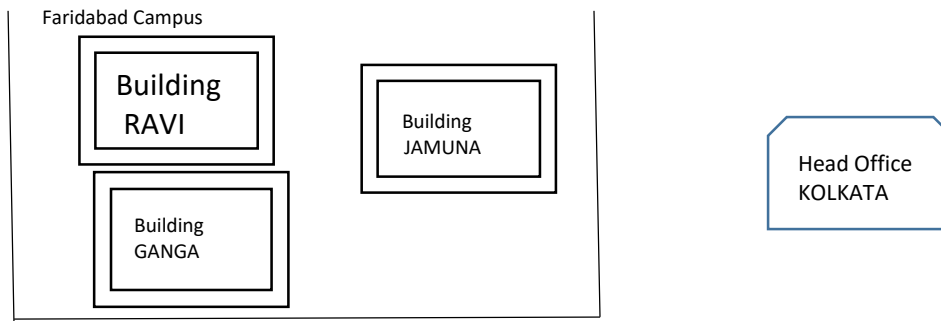
3. G.R.K International Inc. is planning to connect its Bengaluru Office Setup with its Head Office in Delhi. The Bengaluru G.R.K International Inc. is spread across an area of approx. 1 square kilometers consisting of 3 blocks. Human Resources, Academics and Administration. You as network expert have to suggest answers to the four queries (i) to (iv) raised by them.
- NOTE** keep the distances between blocks and number of computers in each block in mind, while providing them the solutions.



Shortest distances between various blocks		Number of computers Installed at various blocks	
Human Resources to administration	100m	Block	Number of Computers
Human resources to Administration	65m	Human Resources	155
Academics to Administration	110m	Administration	20
Delhi Head office to Bengaluru Office Setup	2350km	Academics	100
		Delhi Head Office	20

- Suggest the most suitable block in the Bengaluru Office Setup, to host the server. Give a suitable reason with your suggestion.
- Suggest the cable layout among the various blocks within the Bengaluru Office Setup for connecting the blocks.
- Suggest a suitable networking device to be installed in each of the blocks essentially required for connecting computers inside the blocks with fast and efficient connectivity.
- Suggest the most suitable media to provide secure, fast and reliable data connectivity between Delhi Head Office and the Bengaluru Office setup.

4. Granuda consultants are setting up a secured network for their office campus at Faridabad 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 Kolkata. Answer the questions (i) to (iv) after going through the building positions in the campus and other details, which are given below.



Distance between various buildings		Number of computers	
Building RAVI to Building JAMUNA	120 m	Building RAVI	25
Building RAVI to Building GANGA	50 m	Building JAMUNA	150
Building GANGA to Building JAMUNA	65 m	Building GANGA	51
Faridabad Campus to Head Office	1460 km	Head Office	10

- Suggest the most suitable place (i.e. block) to house the server of this organization. Also, give a reason to justify your suggested location.
- Suggest a cable layout of connections between the buildings inside the campus.
- Suggest the placement of the following devices with justification:
 - Switch
 - Repeater
- The organization is planning to provide a high speed link with its head office situated in the Kolkata using a wired connection. Which of the following cable will be most suitable for this job?
 - Optical fibre
 - Coaxial cable
 - Ethernet cable
- The company is planning to connect its office in the closest big city, which is more than 350 km from university, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.