BRAC
UNIVERSITY

Inspiring Excellence

Assignment 02

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Section: 03

Course code: CSE320

Course title: Data Communication

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Answer to the Question No. 01

Scenario 01:

Network Type: LAN (Local Area Network)

Reason: The 10 labs are in the same building (UB06) in a comparative small area, that's why it is LAN.

Scenario 02:

Network Type: WAN (Wide Area Network)

Reason: As the PCs in BU01 and the PCs at Brac Center are in different networks and can communicate with each other, here the network type is WAN.

Scenario 03:

Network type: WAN (Wide Area Network)

Reason: Brac Center (in Gulshan) and Brac CDM (in Rajendrapur) are in distant places and the distance between this to places is most likely 45km. So, it's a WAN network.
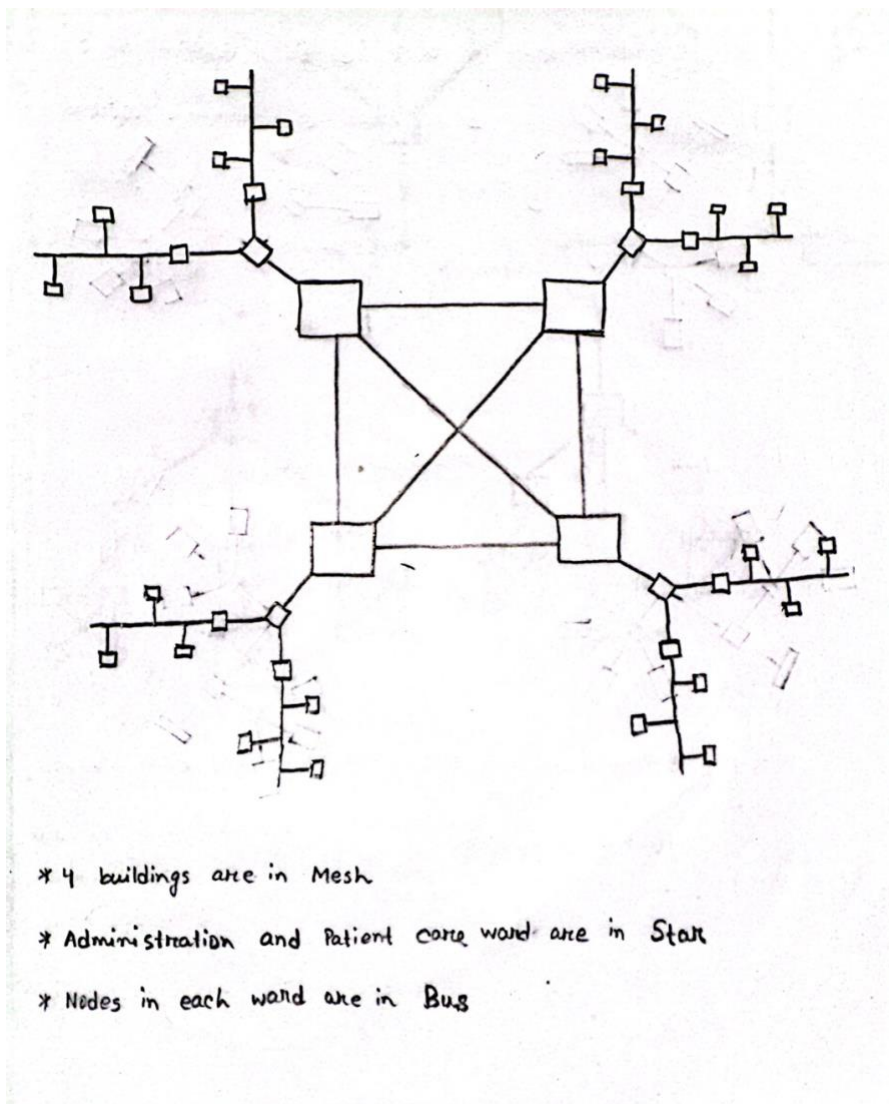
Scenario 04:

Network Type: MAN (Metropolitan Area Network)

Reason: As the fire stations are in the same city. so, the network type is MAN.
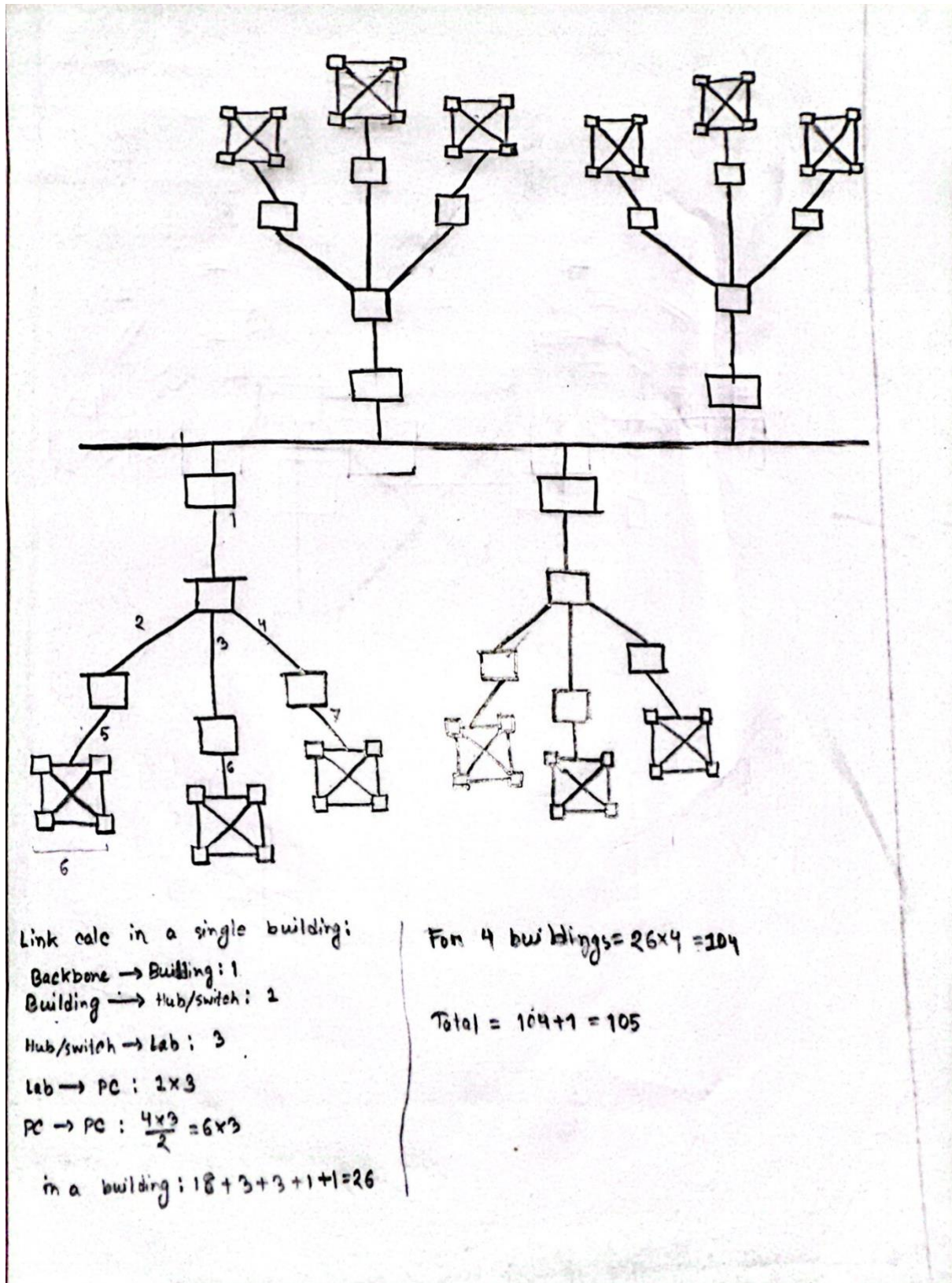
Answer to the Question No. 02

- Number 1 is **Ring Topology**

- Number 2 is **Mesh Topology**

- Number 3 is **Star Topology**

- Number 4 & 5 are **Bus Topology**
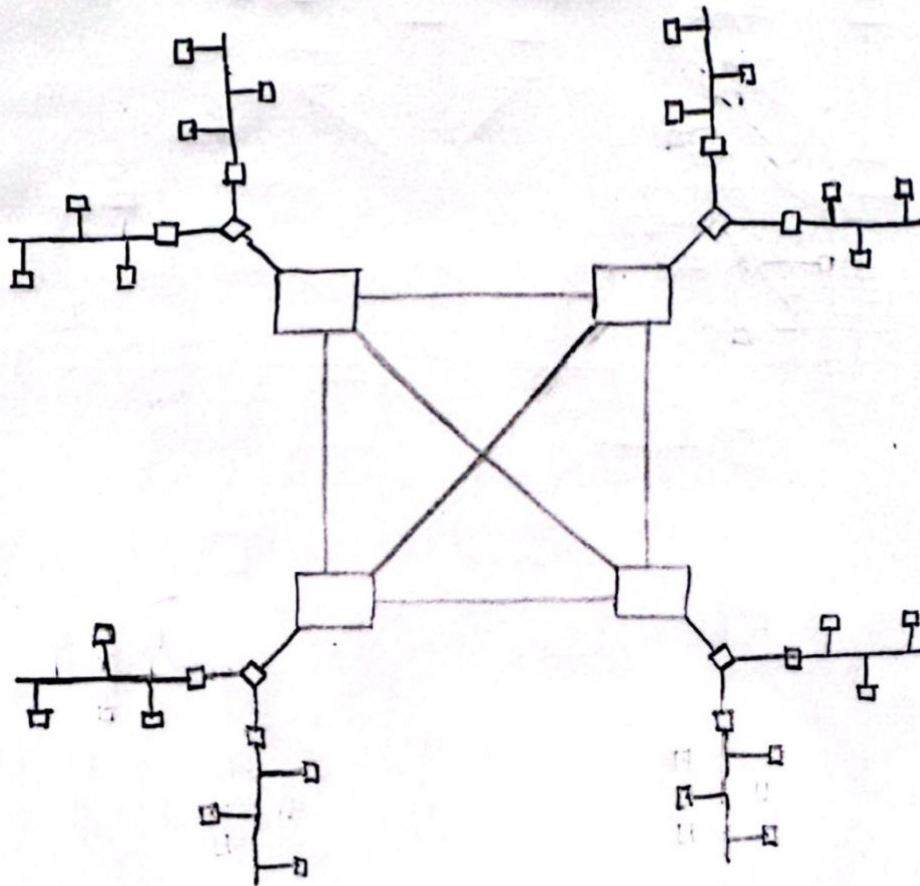
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Answer to the Question No. 03

* 4 buildings are in Mesh

* Administration and Patient care ward are in Star

* Nodes in each ward are in Bus

Link calc in a single building:

Backbone → Building : 1

Building → Hub/switch : 1

Hub/switch → Lab : 3

Lab → PC : 1×3

PC → PC : $\frac{4\times3}{2}$ = 6×3

in a building : 18+3+3+1+1=26

For 4 buildings= 26×4 =104

Total = 104+1 = 105

* 4 departments are in Mesh
* 2 areas are in Star
* 3 Nodes are in Bus

For each building

Building → hub: 1

Hub → area: 2

Backbone: 1 × 2

Backbone → Nodes: 3 × 2

in each building = 1 + 2 + 2 + 6 = 11

For 4 buildings = 11 × 4 = 44

$$Total = 44 + \frac{4 \times 3}{2} = 44 + 6 = 50$$

Answer to the Question No. 06

Network type	Full form	Coverage area	Example
PAN	Personal Area Network	Within few meters of radius around an individual.	Bluetooth, Airdrops.
LAN	Local Area Network	Within an office, building or campus.	Wi-fi, lab network.
MAN	Metropolitan Area Network	Within a city.	TV cable network.
WAN	Wide Area Network	Within countries, or even globally.	Internet.

Answer to the Question No. 07

- End-to-end device: Computer, Mobile phone.

- Intermediary device: Router, Hub.

Answer to the Question No. 08

Software is classified in two types.

- System Software: The built-in (mostly) software which manage the hardware are called System Software. This type of software works like a bridge between users and hardware. Example: Windows, MacOS, Linux.

- Application Software: Software which are used for specific types of tasks, for example productivity, entertainment, or communication, they are called the Application Software. Example: Microsoft word, Power point, Gmail.

Answer to the Question No. 09

Data Type	Standard/file extensions
Image	.jpg, .gif, .png
Audio	.mp3, .m4a, .wav
Video	.mp4, .mkv, .mov
Text	.txt, .docx, .pdf
Application	.apk, .dmg, .jar
Code	.py, .java, .c, .cpp, .html, .js
Spreadsheet	.xls, .xlsx
Presentation	.ppt, .pptx
Compressed file	.zip

Answer to the Question No. 10

The factors that determine the effectiveness of a network system are:

- Delivery

- Accuracy

- Timeliness

- Jitter