Q1 (2 Marks)

Protocols are a set of rules that control how data is sent, received, and understood between devices in a data communication system. They ensure correct formatting, timing, error checking, and delivery of data.
If two devices tried to communicate **without protocols**, the data would become confusing (wrong format), messages could be lost, errors would not be detected, and both devices would fail to understand each other properly.

Q2 (2 Marks)

Simplex mode allows communication in **only one direction** (sender receiver).
 Example: **TV broadcast** (TV station sends, viewer only receives)

Half-duplex mode allows communication in **both directions but not at the same time**.
 Example: **Walkie-talkie** (one person talks at a time)

Q3 (2 Marks)

The **five basic components** of data communication are:

1. **Message** (the data)
2. **Sender** (source device)
3. **Receiver** (destination device)
4. **Transmission Medium** (path like Wi-Fi/mobile data)
5. **Protocol** (rules of communication)

 When you send a photo on a mobile app:

- The **photo is the message**
-

Your phone is the **sender**

- Your friend’s phone is the **receiver**
- The internet (Wi-Fi/4G/5G) is the **transmission medium**
- The app and network rules (TCP/IP, etc.) are the **protocols** ensuring the photo is delivered correctly.

Q4 (2 Marks)

A mobile phone call is **Full-duplex** because both people can **speak and hear at the same time**.
 Advantage over Half-duplex: It allows **real-time two-way conversation**, making communication faster, smoother, and more natural compared to half-duplex where only one person can talk at a time.

Q5 (2 Marks)

In online banking, **security** is essential because sensitive information like passwords, account numbers, and money transfers must be protected from hackers and fraud.
Accuracy is equally important because even a small error in data (like wrong amount or wrong account number) can cause financial loss and serious problems.
So modern banking systems must be both **secure and accurate** to ensure safe and correct transactions.