Computer Communications and Networks
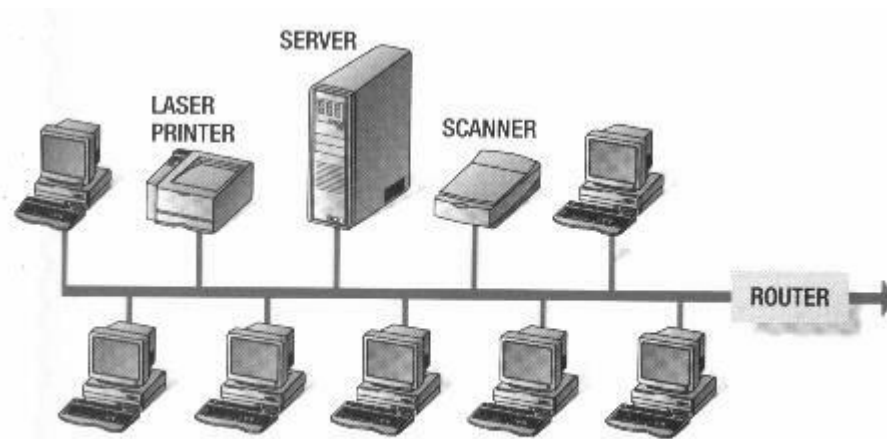
❑ An interconnected group of independent computer systems that communicate with one another for the purpose of sharing hardware and software resources.

❑ Data communications deals with the transmission of signals in a reliable and efficient manner.

❑ Networking deals with the technology and architecture of the communications networks used to interconnect communicating devices.

Computer Networks

- A network is a collection of hardware devices and software protocols that connect computing devices.

- A network is a series of points or nodes interconnected by a communication paths.

- A network is a interconnection of autonomous computers.

- The Internet is a worldwide meta network that interconnects millions of computing devices.

- Network applications provide services, such as email, to users.

Use of Computer Networks:

- Email, WWW, Video conferencing, File Transfer, Collaborative Virtual Environments, Remote Control robots and machines etc.

A Communications Model

The fundamental purpose of a communications system is the exchange of data between two parties.
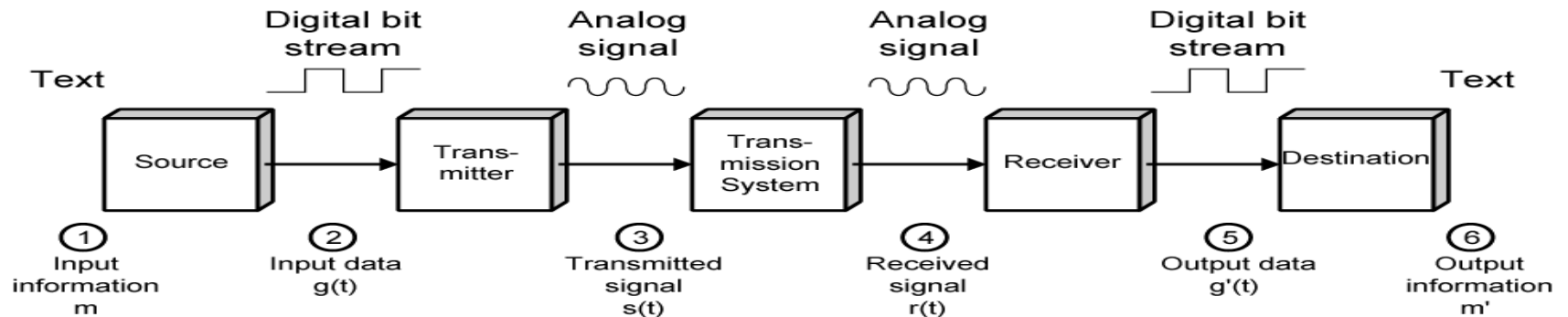

(a) General block diagram

(b) Example

Data Communications Model

Some goals of computer networks

- Access to remote resources
- Human communication
- Mobile computing
- Computing power through parallelism
- Optimizing resources - load balancing
- Incremental growth of computer systems (reduced cost and risk)
- Increased robustness through graceful degradation