SNS COLLEGE OF ENGINEERING

An Autonomous Institution
Coimbatore-641 107
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19EC504-ANALOG AND DIGITAL COMMUNICATION

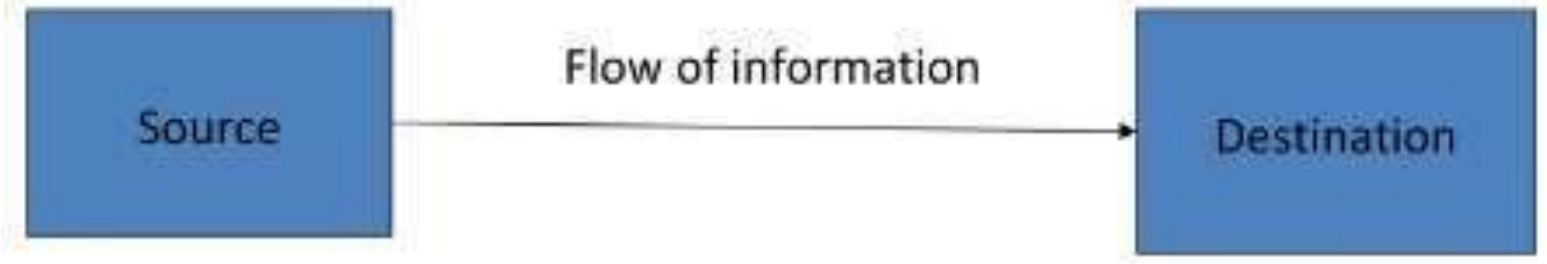
III YEAR/ V SEMESTER

UNIT 1 – ANALOG COMMUNICATION

TOPIC – INTRODUCTION TO COMMUNICATION SYSTEMS

Introduction to Communication Systems

- The basic process of exchanging information from one location (source) to destination (receiving end).
- It refers to the process of sending, receiving and processing of information/signal/input from one point to another point.



Electronic Communication System

Examples:

Radiotelephony, broadcasting, point-to-point, mobile communications, computer communications, radar and satellite systems.

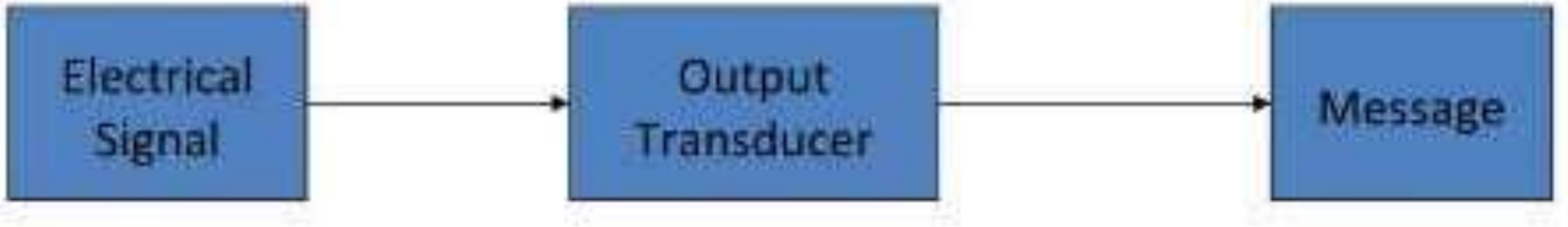
Message – physical manifestation produced by the information source and then converted to electrical signal before transmission by the transducer in the transmitter.

Transducer – Device that converts one form of energy into another form.

Input Transducer – placed at the transmitter which convert an input message into an electrical signal.

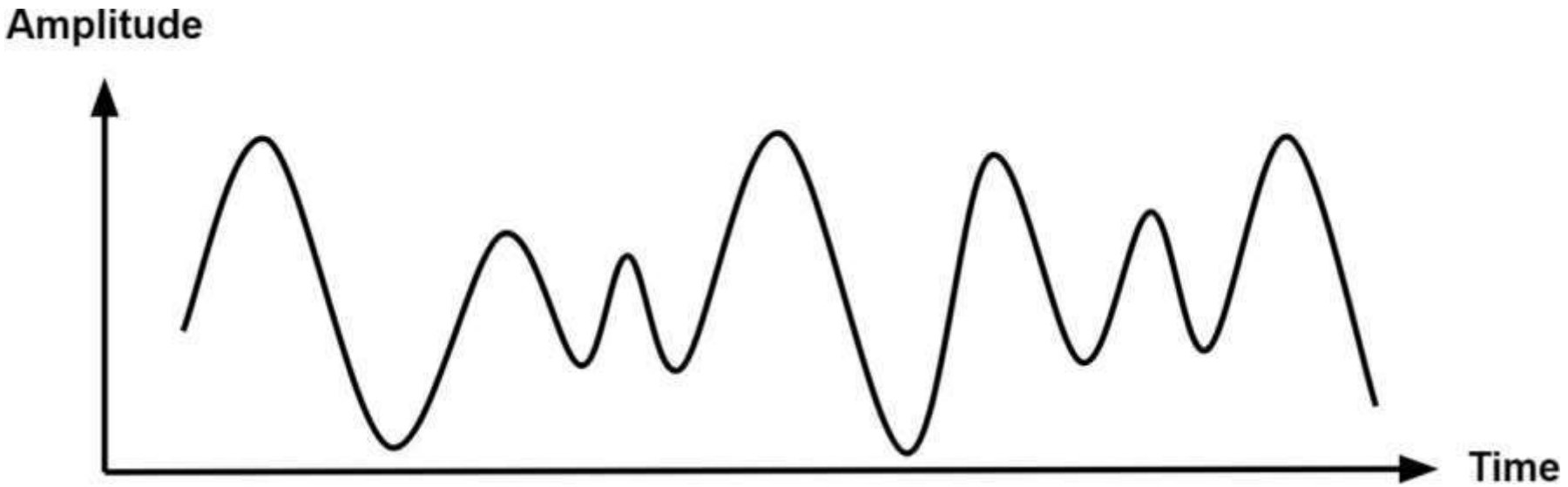
Example – Microphone which converts sound energy to electrical energy. Message Input Transducer Electrical Signal

Output Transducer – placed at the receiver which converts the electrical signal into the original message.
Example – Loudspeaker which converts electrical energy into sound

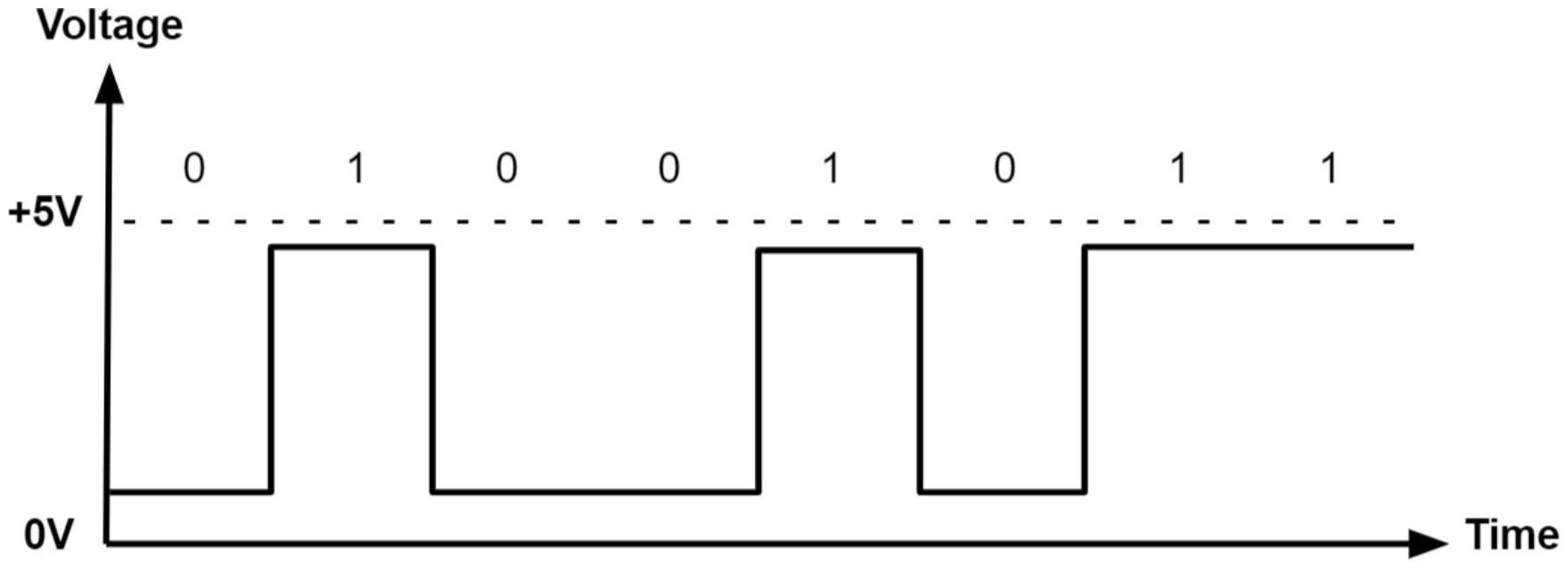


Signal – electrical voltage or current which varies with time and is used to carry message or information from one point to another. Electrical Signal Output Transducer Message

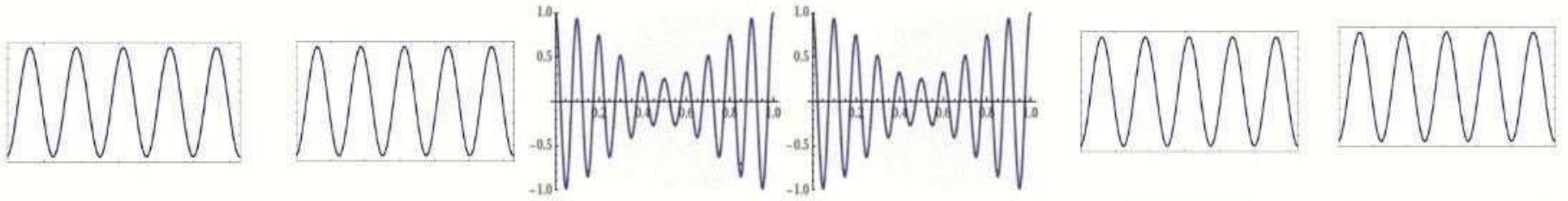
ANALOG SIGNAL



DIGITAL SIGNAL

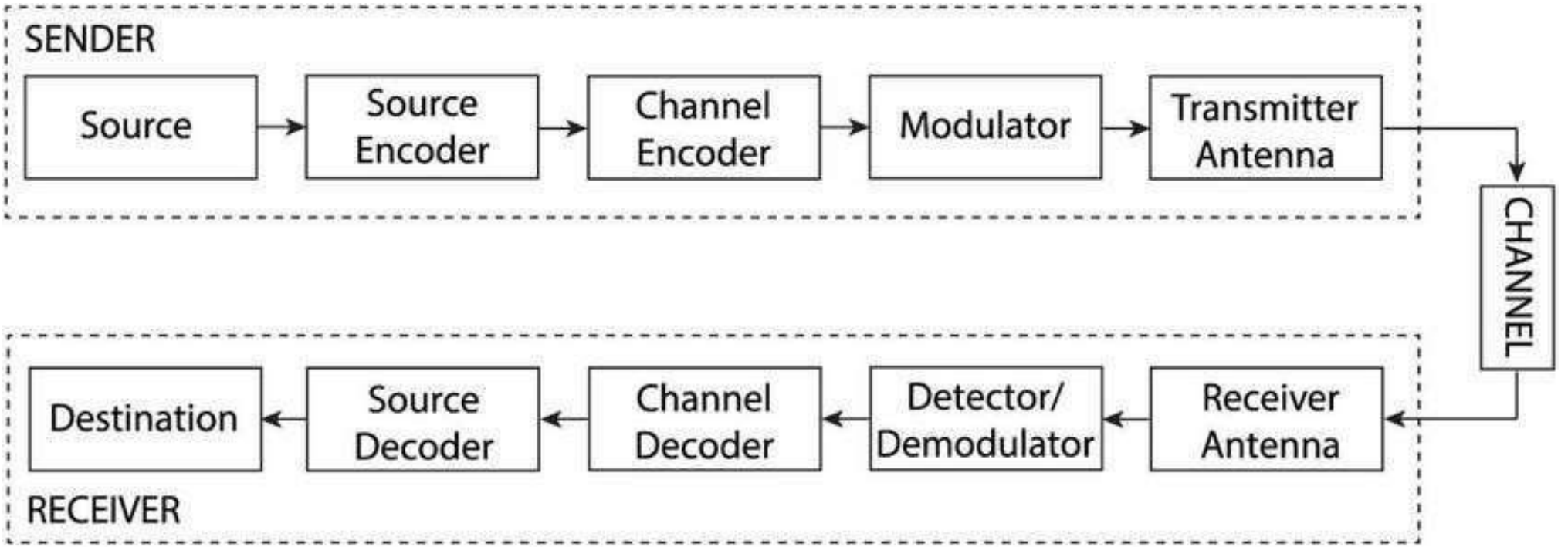


BLOCK DIAGRAM OF ANALOG COMMUNICATION SYSTEM

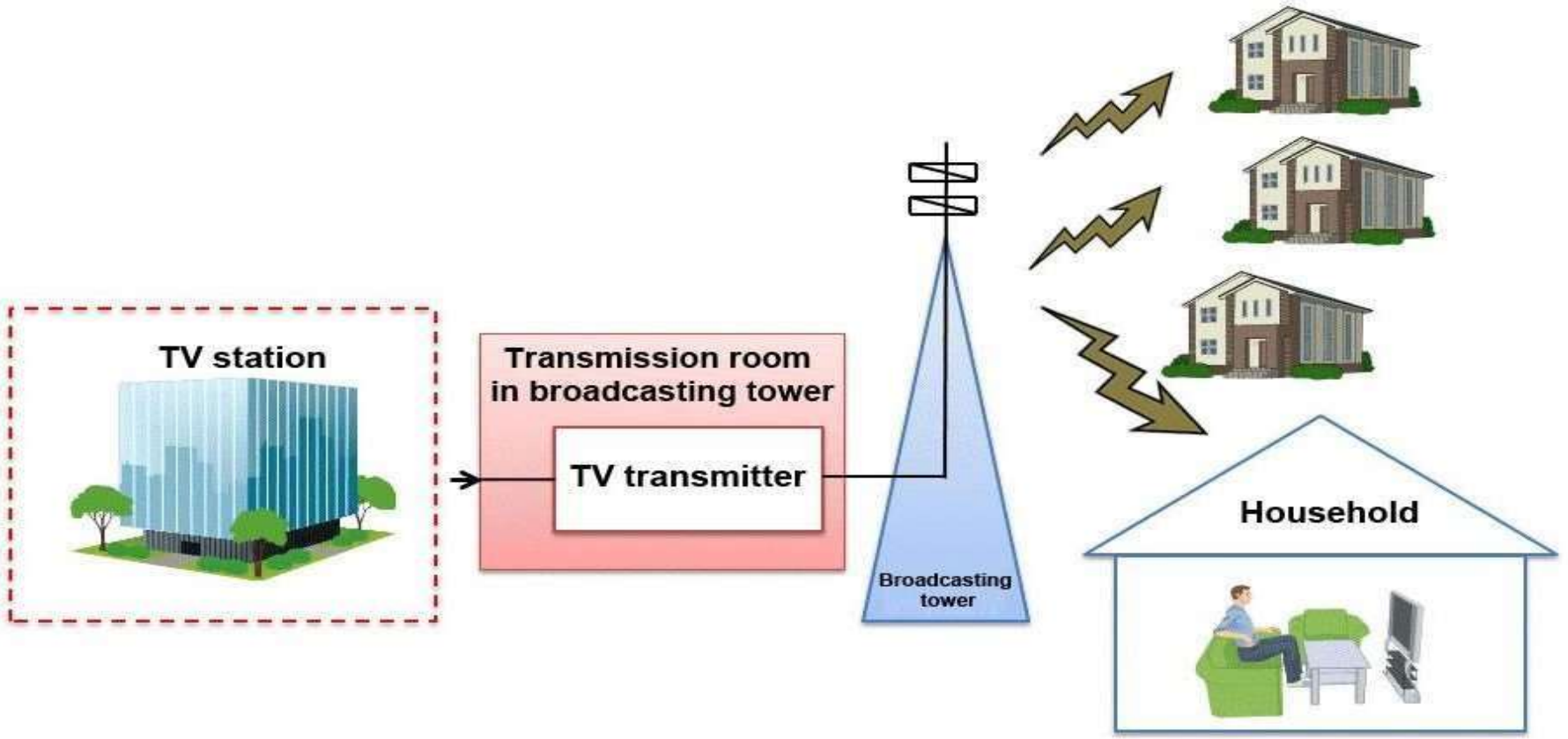


Information Source → Input Transducer → Transmitter → Channel → Receiver → Output Transducer

BLOCK DIAGRAM OF DIGITAL COMMUNICATION SYSTEM



FAMILIAR COMMUNICATION SYSTEM



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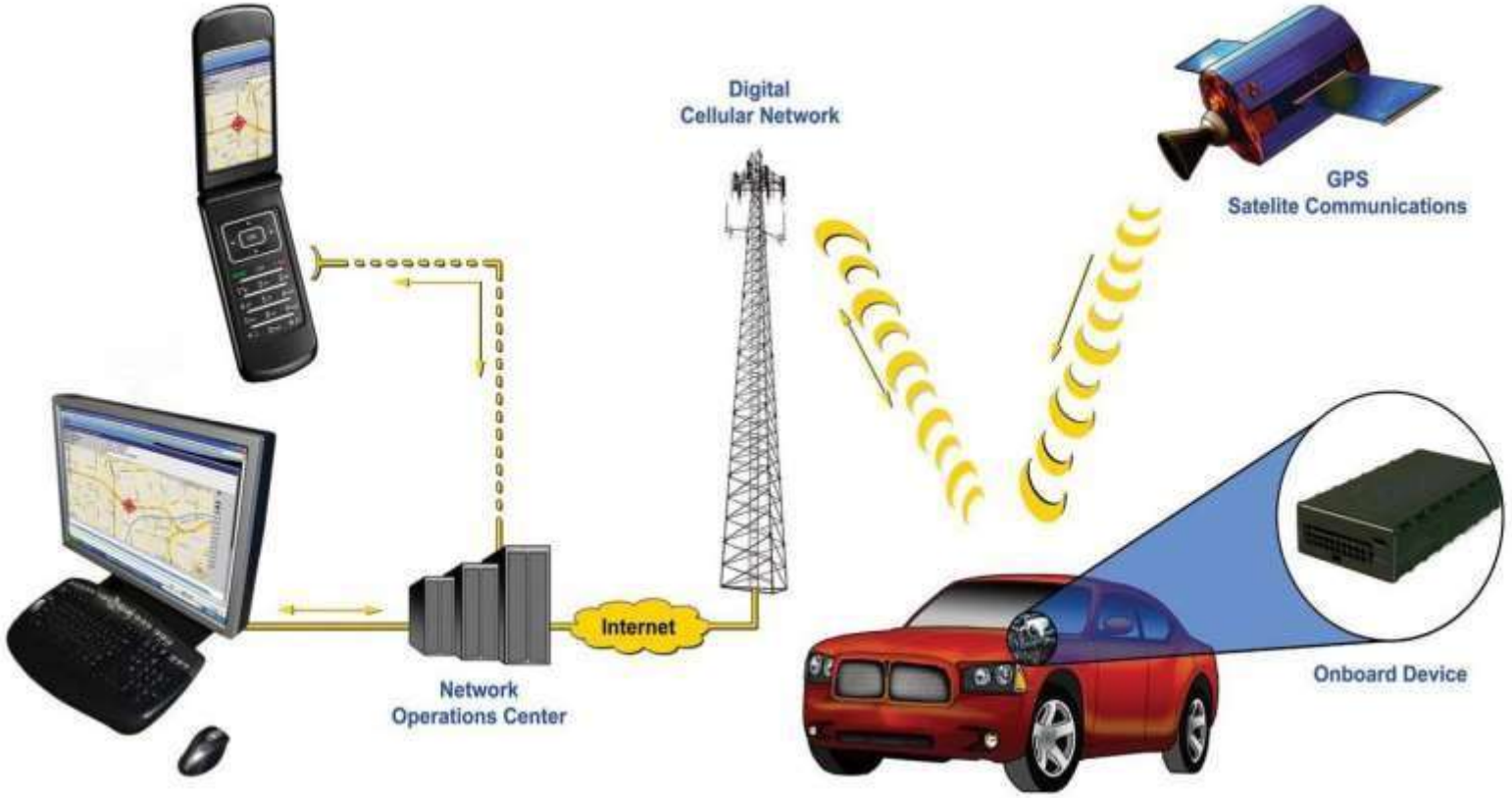

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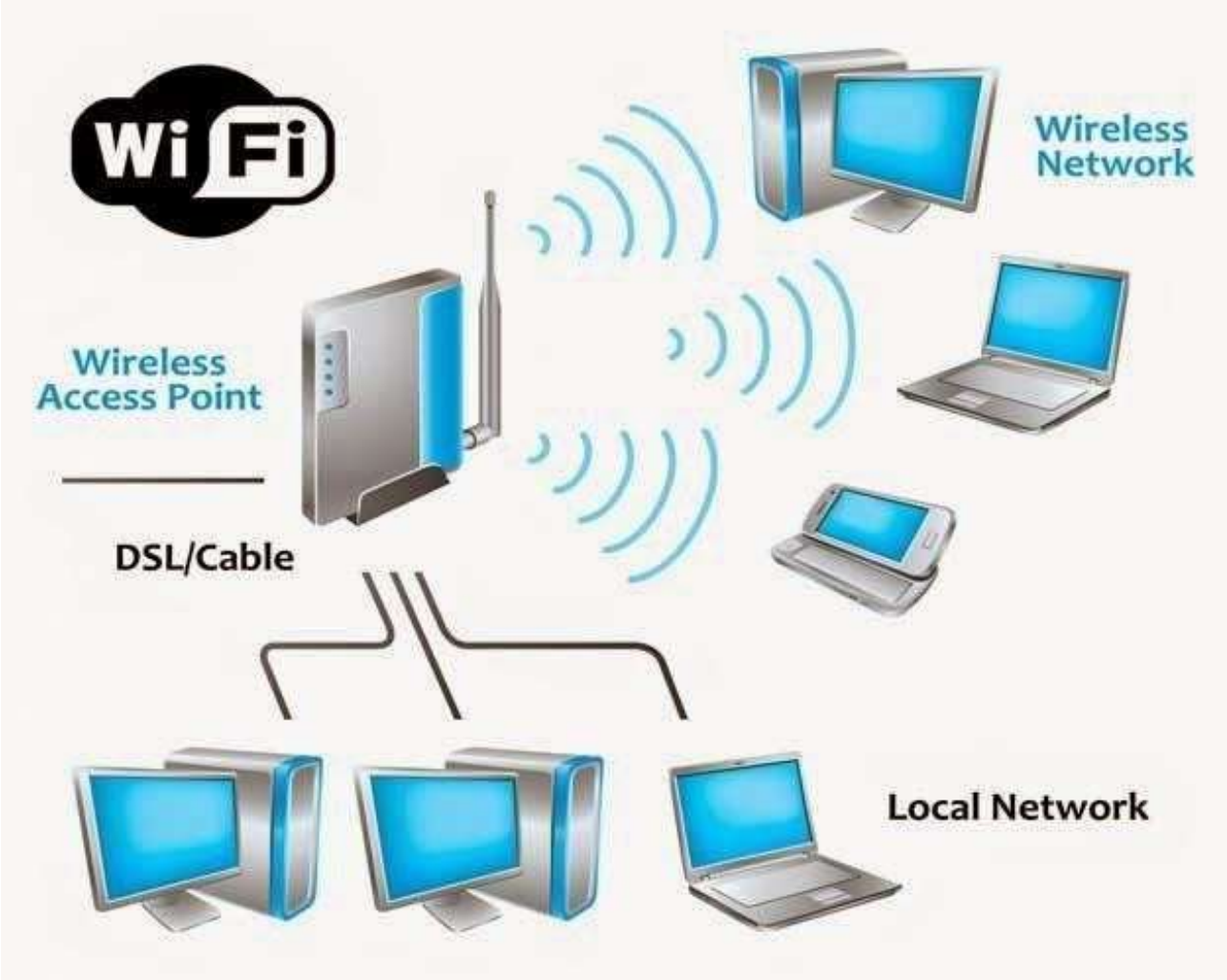
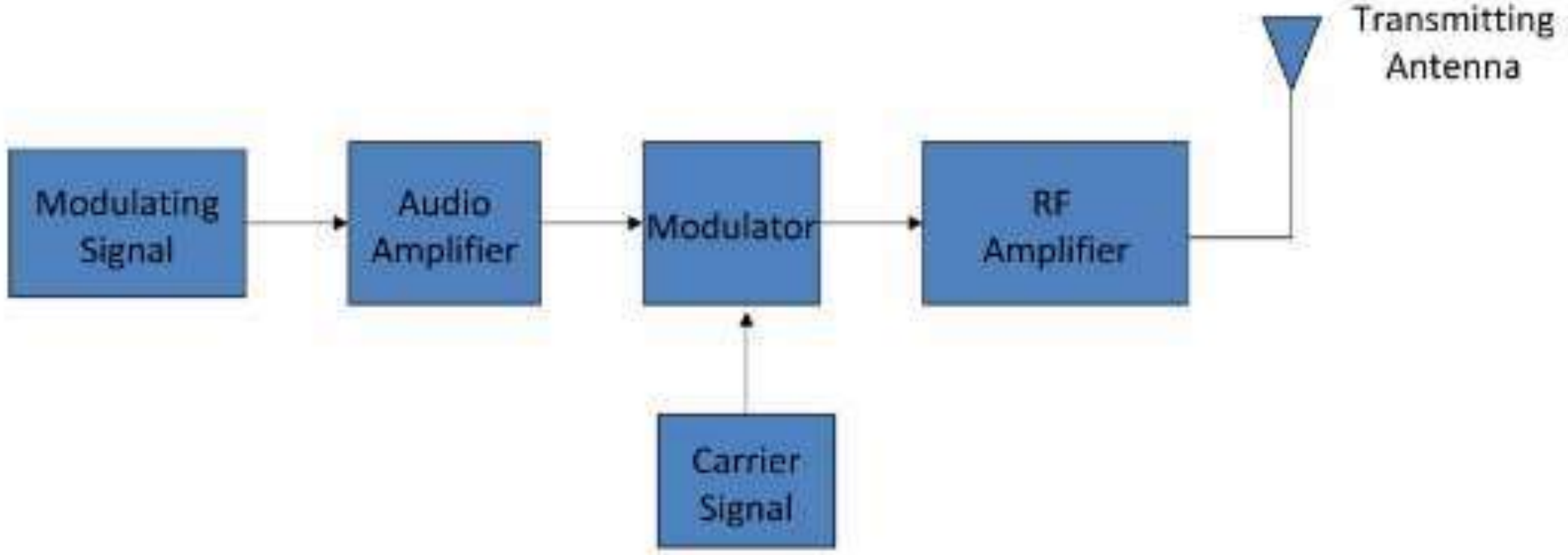


Block Diagram of a Transmitter



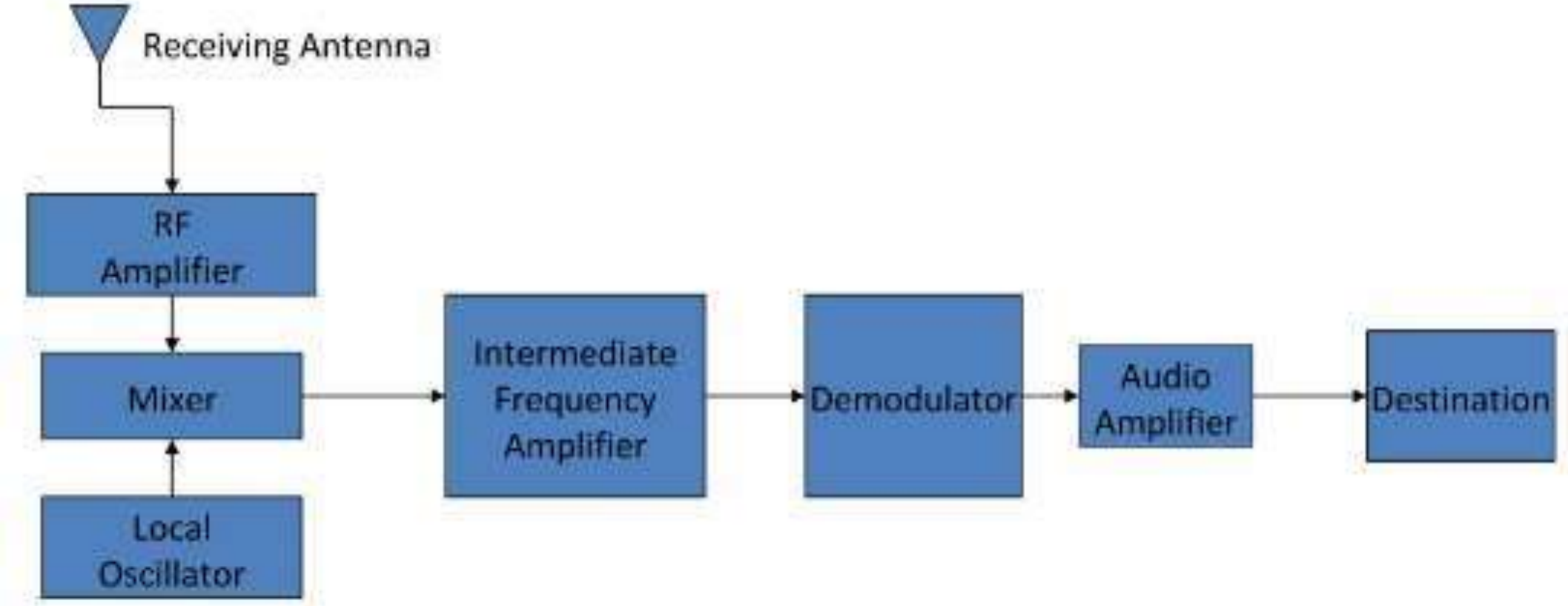
Transmitter:

The link or path over which information flows from the source to destination. Many links combined will establish a communication networks.

There are 5 criteria of a transmission system; 1.Capacity,
2.Performane,
3.Distance,
4.Security and
5.Cost which includes the installation, operation and maintenance.

The two main categories of channel that commonly used are; line (guided media) and free space (unguided media).

Block Diagram of a Receiver



Receiver:

- Receives the electrical signals or electromagnetic waves that are sent by the transmitter through the channel. It is also separate the information from the received signal and sent the information to the destination.
- Basically, a receiver consists of several stages of amplification, frequency conversion and filtering.
- Destination is where the user receives the information, such as loudspeaker, visual display, computer monitor, plotter and printer.

RF Amplifier Mixer Local Oscillator Intermediate Amplifier Demodulator Audio Amplifier Destination Antenna

ASSESSMENT

1. Define Communication.

2. Mention the use of Transducer?

THANK YOU