

CC – XII – COMMUNICATION ELECTRONICS.

Unit – I: Modulations.

Communication – Components of a communication system – Wireless communication system – Necessity for modulation – Modulation – Side bands – Bandwidth – Amplitude modulation principle – Frequency modulation principle – Modulation factor – Percentage of modulation – Assignable frequency spectrum.

Unit – II: AM Transmitter and Receiver Fundamentals.

Low level modulation – High level modulation – Exciter – Power amplifier – The driver – The modulator – Direct neutralization.

TRF receiver – Superheterodyne principle – Superheterodyne receiver – Double conversion receiver – Image frequency rejection – S/N ratio – Sensitivity – Selectivity – RF amplifier – Mixer – Local oscillator – IF amplifier working – AM detector – AGC – Audio amplifier.

Unit – III: Communication Elements.

Variable frequency oscillator – Reactance modulator- PLL – Frequency multiplier – Power output amplifier – FM limiter- The discriminator – The ratio detector -AFC.

Balanced modulator principle – Phase modulator – Frequency divider.

Unit – IV: Antennas and Propagation.

The half wave dipole – Its Characteristics -Impedance and radiation pattern – The folded dipole – Characteristic impedance and radiation pattern – Parasitic array antenna. Transmission line – Cable types – Co- axial and wire- pair – Maximum power transfer.

Unit – V: Communication Types.

RADAR principle – Satellite communication fundamentals – Up Link – Down Link – Transponder – Multiplexing technique – Basic PCM technique – Basic ideas of cell phone and FAX – Diode laser – Fibre optic communication fundamentals – Advantages and disadvantages.

Books for Study:

1. Electronic communication, Modulation and Transmission.- Robert J. Schoenbeck – Universal Book Stall, Delhi.
2. Electronic Communication Systems –George Kennedy, Tata McGraw Hill.

Books for References:

1. Principles of Communication Engineering – Anokh Singh, S.Chand &Co., Delhi.
2. Communication Electronics – N.D. Despande and others – Tat McGraw Hill.
3. Communication Electronics – Louis Fresnel, McGraw Hill.
4. Electronic Communication, Dennis Roddy and John Coolen, Prentice Hall.