M-SCHEME DETAILLED SYALLABUS

34042 COMMUNICATION ENGINEERING

UNIT I Networks, Antenna and Propagation

Networks

Symmetrical and asymmetrical networks, characteristic impedance and propagation constant.

Equalizer

Definition, types and applications. Attenuator: Definition, types - symmetrical T and Pi attenuators- simple problems – applications. Filters: Definition, types – circuit elements and cutoff frequencies of LPF, HPF and BPF - simple problems- applications

Antennas

Definition-types of antenna: Mono pole and dipole antenna, directional and Omni directional Antenna, Dipole arrays, Yagi antenna, parabolic antenna- Antenna parameters: directive gain, directivity, radiation pattern and polarization-applications

Propagation

Ground wave propagation, sky wave propagation and space wave propagation

UNIT II Introduction to Modulation and Amplitude Modulation

Introduction to Modulation

Definition- Need for modulation- types of modulation - Frequency spectrum - relationship between wavelength and frequency

Amplitude modulation

Definition - Simple signal diagram for amplitude modulation, Expression for amplitude modulation, expression for modulation index – sidebands: DSB, SSB and VSB

AM Transmitter

Types of transmitters: high level AM transmitter, low level AM transmitter and SSB transmitter

AM Receiver

Types of receiver: TRF receiver, super heterodyne receiver and SSB receiver.- Selection of IF- AGC types: simple and delayed AGC.

UNIT III Frequency and Pulse Modulation

Frequency modulation

Definition-Simple signal diagram for frequency modulation, Expression for frequency modulation, expression for modulation index.

FM Transmitter

Types of transmitters: Direct FM transmitter, Indirect FM transmitter and stereophonic FM transmitter.

FM Receiver

Stereophonic FM receiver-AFC. Comparison of FM and AM.

Pulse modulation

Definition- Types: Generation and detection of PAM, PWM, PPM, PCM & DPCM

UNIT IV Audio systems

Microphones

Definition-Construction and performance of the following microphones: carbon, condenser, piezoelectric, moving coil and velocity ribbon.

Loud speakers

Definition-Constructional details of dynamic cone type, Horn type and electro-static loud speakers, woofer, midrange and tweeter, cross-over network. Surround-sound systems.

Audio recording and reproduction

Compact disc system- MP3 system - DVD system - stereophonic system - Hi-Fi system principles-DTS.

UNIT V Video systems

Monochrome Television

Scanning principles - synchronization - aspect ratio- composite video signal- TV broadcasting standards. TV transmitter- TV receiver.

Color TV

Principles of color transmission and reception- color CCD camera, LCD, LED display unit – plasma display - Principles of Handy cam, CCTV and cable TV.

REFERENCE BOOKS

1. Networks lines and fields – John D.Ryder, PHI

2. Electronic communication Systems – Kennedy – TMH

3. Electronic Communication – Dennis Roddy and John colen – PHI

4. Fundamentals of Acoustics – Kingsler & frey – Wiley Eastern ltd.

5. TV and Video engineering – Arvind M.Dhake – TMH.