

# AMEL07 ELECTRONIC DEVICE & CIRCUITS

## UNIT-1 MULTI STAGE TRANSISTOR AMPLIFIERS

- 1.1 Introduction, Multi-Stage Transistor Amplifier, Gain Decibel, Frequency Response, Band Width, R-C (Resistance-Capacitance) Coupled Transistor Amplifier),
- 1.2 Frequency Response, Transformer Coupled Transistor Amplifiers, Direct-Coupled Amplifiers, Comparison of Different Types of Multi-Stage Amplifiers.

## UNIT-2 TRANSISTOR POWER AMPLIFIERS

- 2.1 Voltage and power amplifiers, comparison of voltage and power amplifiers, process of power amplification, single ended transistor power amplifier, performance of power amplifiers,
- 2.2 Classification of power amplifiers, calculations for maximum collector efficiency of a class-a power amplifier, transistor temperature control by heat sinks,
- 2.3 Collector dissipation curve and its importance, stages of a practical power amplifier, driver stage, complementary-symmetry push-pull amplifier,
- 2.4 Harmonic distortion in power amplifiers, distortion in push-pull amplifiers

## UNIT-3 FEEDBACK AMPLIFIERS

- 3.1 Feedback, Principle Of Negative Feedback In Amplifiers, Gain Of Amplifier With Negative Feedback, Transistor Amplifier Circuit With Negative Voltage Feedback,
- 3.2 Feedback Circuit, Negative Feedback Circuits, Transistor Amplifier Circuits With Negative Current Feedback, Circuit Analysis

## UNIT-4 SINUSOIDAL OSCILLATORS

- 4.1 Sinusoidal oscillator, types of electrical oscillations, transistor oscillator, different types of transistor oscillators, principle of phase shift oscillators, R.C phase shift oscillator,
- 4.2 Wein bridge oscillator, piezoelectric effect and crystals, characteristics of crystal, transistor crystal oscillator

## UNIT-5 TUNED AMPLIFIERS (RF AMPLIFIERS)

- 5.1 Classification of tuned amplifiers, merits and limitations of tuned amplifiers, narrow band tuned amplifier, tunability Single tuned capacitance coupled amplifier,
- 5.2 Tuned power amplifier, tuned class c amplifiers,

## UNIT-6 SWITCHING AND WAVE-SHAPING

- 6.1 Switching circuit, switch, electronic switch, comparison between electronic and other switches, analysis of switching action of a transistor,
- 6.2 Multi vibrators and their working principle, types of multivibrators, bistable multi vibrator,
- 6.3 Differentiating circuit, wave-shaping by differentiating circuit, integrating circuit, wave-shaping by integrating circuit,
- 6.4 Voltage multipliers, voltage double, voltage Tripler, voltage quadruple, necessity of voltage multipliers, clamping circuits, wave shaping by various clipping/clamping circuits

## **UNIT-7 SPECIAL POWER SUPPLIES**

7.1 Transistorized inverter, constant voltage transformer (cvt), construction of cvt, comparison between cvt and stabilizer,

7.2 Comparison among three types of ups systems, three-terminal IC voltage regulators

## **UNIT-8 OPERATIONAL AMPLIFIERS**

8.1 Operational amplifiers, ideal opamps with feedback (virtual ground), properties of practical op-amps, op-amps as voltage amplifiers, the voltage follower,

8.2 Differential amplifier, op-amp differentiator, practical operational amplifiers

### **Reference Book:**

1. Electronics device and circuit, Publisher Katsons, Writer J B Gupta

