Subject Code : RN1I2

SEMESTER I- PAPER II – ANALOG ELECTRONICS

UNIT I - BJT AND FET BIASING

Operating point-fixed bias circuit-Emitter Stabilized Bias Circuit – Voltage Divider Bias – D.C. Bias with Voltage feedback – Design Operations – Transistor switching networks
FET biasing – Introduction – Fixed Bias Configuration – Self-Bias Configuration – Voltage Divider Biasing – Combination Networks.

UNIT II - BJT SMALL SIGNAL ANALYSIS

Amplification in the AC domain – BJT transistor modeling – important parameters – Transistor model – Hybrid equivalent model – Graphical determination of h-parameters- Variation of Transistor parameter – Common emitter fixed bias configuration – Voltage divider bias – CE bias configuration – Emitter follower configuration – Common base configuration – Collector feed back configuration – complete hybrid equivalent model.

UNIT III - FET SMALL SIGNAL ANALYSIS

Construction and characteristics of JFETs – Transfer characteristics – Special Sheets (JFETs) Depletion- Type MOSFETs – Enhancement – Type MOSFETs – MOSFET Handling-VMOS-CMOS-FET Small signal Model – AC equivalent Circuit-Basic JET circuits-Source follower-common gate circuit-Enhancement MOSFET amplifier-Design of JFET amplifier Circuit.

UNIT IV – OSCILLATORS

Feedback concepts-Practical feedback circuits- Feedback amplifier-Phase and frequency considerations- Oscillator operations- Phase – Shift Oscillator – Wein Bridge Oscillator-Tuned Oscillator circuits – Crystal Oscillator – Injection Oscillator

UNIT V – OPERATIONAL AMPLIFIER

Differential and common mode operation – Opamp basics-Practical opamp circuits – Opamp specification- DC offset Parameters – Opamp Specification and frequency parameters – Opamp circuit specification – Constant gain multiplier – Voltage Summing – Voltage Buffer – Controlled source – Active filters.

BOOKS FOR STUDY

1) Electronic Devices and Circuit Theory, Robet Boylestad and Louis Nashelsky, Prentice-Hall of India, Private Limited, New Delhi, 1996. Unit I to V

BOOKS FOR REFERENCE

1. Integrated Electronics, C.Halkias and Jacob Millman, McGraw Hill, Singapore, 1991.
2. Hand Books of Electronics, S.L.Gupta and V.Kumar, Pragati Prakash, Meerut 1993.