UNIT I SEMICONDUCTOR DEVICES 9

PN junction diode, Zener diode, BJT, MOSFET, UJT –structure, operation and V-I

characteristics, Rectifiers – Half Wave and Full Wave Rectifier, Filters, Voltage regulator

UNIT II AMPLIFIERS 9

Load line, Q point and biasing for BJT and MOSFET, BJT small signal model – Analysis of

CE, CB, CC amplifiers- Gain and frequency response –MOSFET small signal model– Analysis

of CS, CG and Source follower – Gain and frequency response.

UNIT III MULTISTAGE AMPLIFIERS AND DIFFERENTIAL AMPLIFIER 9

Cascode amplifier, Differential amplifier – Common mode and Difference modes – MOSFET

input stages – tuned amplifiers – Gain and frequency response.

UNIT IV FEEDBACK AMPLIFIERS AND OSCILLATORS 9

Advantages of negative feedback – Voltage / Current, Series , Shunt feedback Amplifiers –

positive feedback–Barkhausen Condition for oscillations- phase shift – Wien bridge, Hartley,

Colpitts and Crystal oscillators.

UNIT V POWER AMPLIFIERS AND DC/DC CONVERTERS 9

Power amplifiers- class A-Class B-Class AB-Class C-Power MOSFET-DC/DC convertors –

Buck, Boost, Buck-Boost analysis and design.