

**SEMICONDUCTOR DEVICES AND ELECTRONIC CIRCUITS – II**

**Unit I - Hybrid Parameters and Multistage Amplifiers**

The h-parameters of a linear circuit –determination and meaning of h parameters – another representation – hybrid equivalent of CE, CB and CC transistor circuit – Amplifier expression (CE, CB & CC). Gain of multistage amplifier – Different coupling schemes – RC coupled – Frequency response – applications – Impedance coupling – Transformer coupling – Transformer coupling – Frequency response. Darlington amplifier – characteristics.

**Unit II – Power Amplifier**

Difference between voltage and power amplifiers – parameters – AC load line – classification of power amplifiers – class A amplifier – characteristics – power relation – collector efficiency – class B amplifier – characteristics – power relation – efficiency – class B push pull amplifier – advantages – cross over distortion – complementary symmetry class B push pull amplifier – class C amplifier and characteristics.

**Unit III – Feedback and Fet Amplifier**

Principles of feedback amplifiers – merits and demerits – Gain stability – increased Bandwidth – decreased distortion – types of feedback connections – voltage series and shunt feedback connection – current series and shunt feedback connection – comparison – Emitter follower JFET amplifier – CS amplifier – analysis, CE amplifier – analysis, CG amplifier – analysis.

**Unit IV - Sinusoidal and Non Sinusoidal Oscillators**

Comparison of amplifier and oscillator – classification – nature – oscillator circuit – frequency – Barkhausen criterion – Tuned collector oscillator – Hartley oscillator – Colpitt's oscillator – crystal oscillator – phase shift oscillator – Wien Bridge oscillator – Transistor as a switch, Transistor switching times – Astable multivibrator – circuit operation – frequency – monostable multivibrator – Bistable multivibrator – Schmitt Trigger.

**Unit V - Thyristors and Their Applications**

Types of thyristors – SCR – TRIAC – DIAC –UJT – biasing - operation – equivalent circuit operation – switching circuits – V-I characteristics – applications – SCS – applications Lamp dimmer (Triac & Diac) – Power control – Half wave control (Traic & Diac) – Full wave control (SCR & UJT).

**Books for Study :**

1. Sedha, R.S., A Text book of Applied Electronics. (2<sup>nd</sup> Edn) (New Delhi : S.Chand & Co., 1999)

**Books for Reference:**

1. Malvino, A.P. Electronic Principles (5<sup>th</sup> edn) (New Delhi : Tata McGraw Hill, 1997)
2. Theraja, B.L. and Theraja, A.K. : Electronics Devices & Circuits (1<sup>st</sup> edn) (New Delhi : S.Chand & Co., Ltd., 1999)