

ELECTRONICS

CHSE +2 Sc (1st year) 2021

Unit -1 Periods -9

(a) Resistance :- Types of resistance, variable resistance, color code, power rating, specific resistance,

(b) Capacitance :- Capacitance, types of capacitors, variable capacitors, color codes, charging and discharging of capacitor, energy stored in a capacitor,

(c) Inductance :- Faraday's and Len's Law, self and mutual Inductance, types of inductors, inductance of a solenoid, energy stored in an inductor,

Unit -II Periods -12

(a) Circuits:- DC Circuits-RC,RL and LC circuits for growth and decay, AC Circuits-pure R and C circuits and RC, RL, LC

(b) Thermo ionic Emission :- Types of electron emission, work function, thermo ionic emission, Richardson, Richardson-Dushman equation(NO Derivation), Child's law (No Derivation).

(c) Vacuum Tubes :- Diode valve working, characteristic and uses, Triode working, characteristic, constant of triode, relation between them, limitation of triode valve, use of triode as an amplifier, idea on tetrode and pentode valve.

Unit-III Periods -9

(a) Semi conductor :- , Explanation of conductor, semiconductor and insulator, Intrinsic and extrinsic semiconductor, P type and N type semiconductor , Energy band of extrinsic semiconductor .

(b) PN junction:- PN junction, Potential barrier, Depletion layer, forward bias and reverse bias, characteristic, Zenner diode, Characteristic of LED and Photodiode.

(c) Rectifier and filter :- Half wave, centre tapped full wave and bridge rectifier, efficiency, Ripple factor, capacitor filter, inductor filter, and RC filter(qualitative Discussion of filters only).

Unit-IV Periods -12

(a) Transistor:- PNP and NPN transistor, working, input, output and transfer characteristic Of CB,CE input and output impedance, current amplification factor and relation between them, leakage current, DC and AC load line, operating point, Q point.

(b) Transistor biasing :-

transistor biasing of base resistor, feedback resistor and potential divider method.

(c) Amplifiers:- CB,& CE amplifiers with their voltage, current and power gain, Phase relationship between input and output of these amplifiers. Qualitative discussion of class A,B & C amplifiers with reference to load line, Q point, and efficiency.

Unit V Periods -8

(a) Instruments:- Multimeter construction and working, VTVM construction and working, Elementary idea on Microphone and loud speakers

(b) Integrated circuits:- IC, basic idea, IC classification, Monolithic IC, making, fabrication of components, thick and thin films (idea only),