SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS – UNIT – 7 –IMPORTANT DIAGRAMS

PREPARED BY Dr.G.THIURUMOORTHI,M.Sc,B.Ed,Ph.D ,PHYSICS

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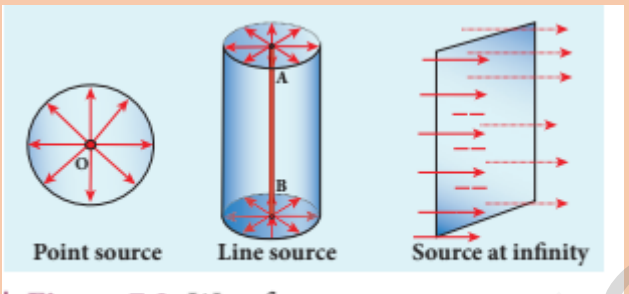


Figure 7.2 Wavefronts

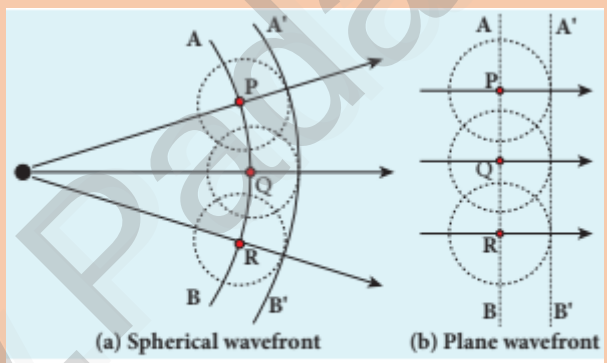


Figure 7.3 Huygens' Principle

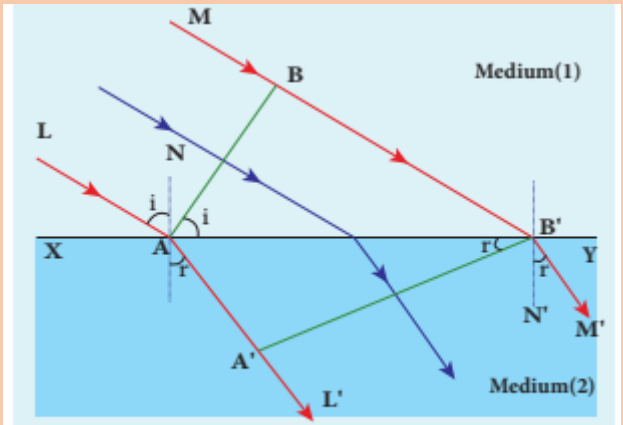


Figure 7.5 Law of refraction

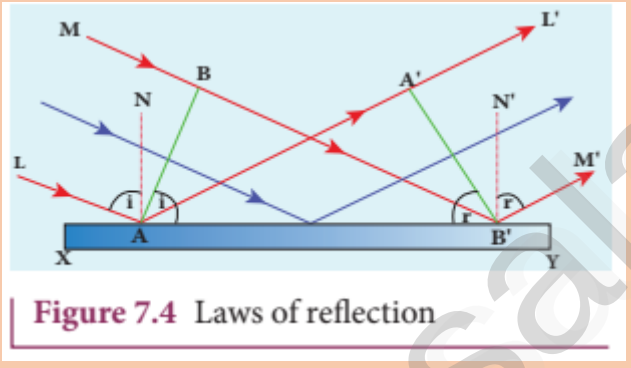


Figure 7.4 Laws of reflection

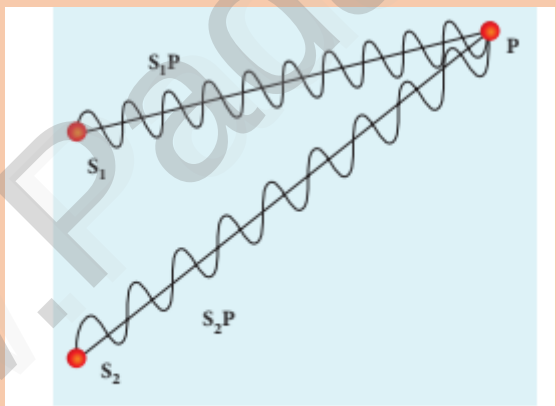


Figure 7.6 Superposition principle

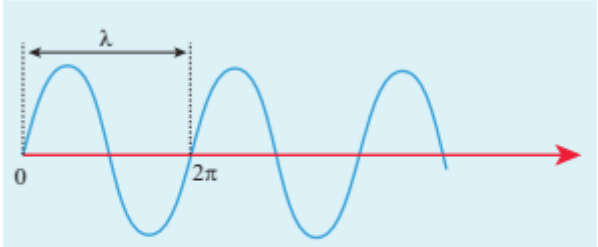
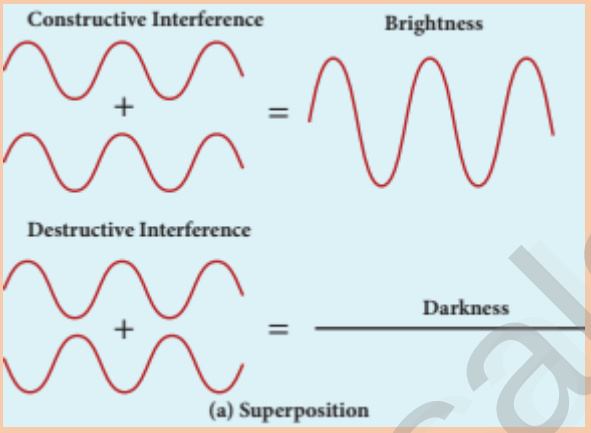


Figure 7.7 Path difference and phase difference



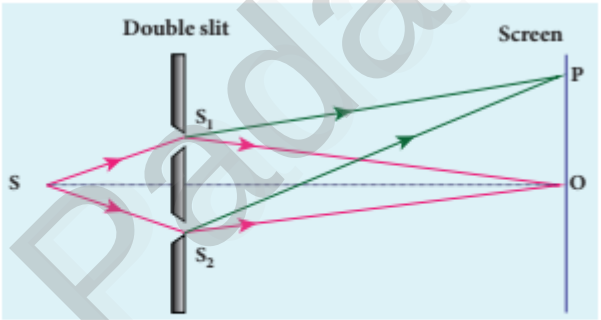


Figure 7.12 Young's double slit experimental setup

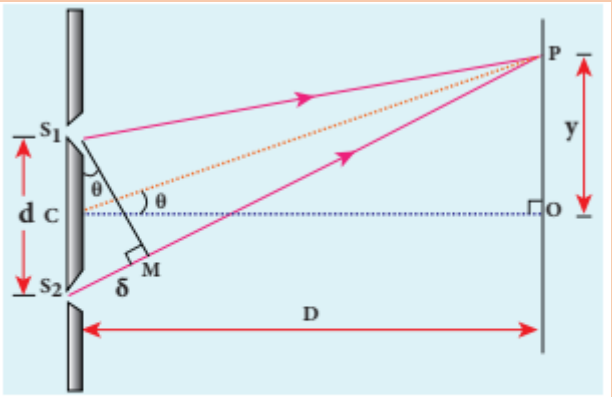


Figure 7.13 Young's double slit arrangement to find path difference

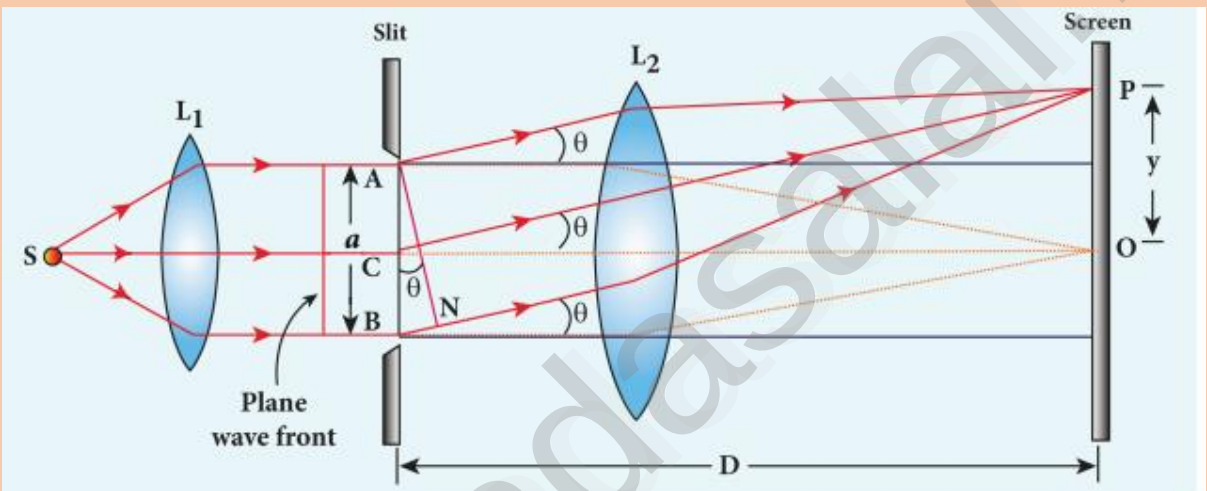


Figure 7.17 Diffraction at single slit

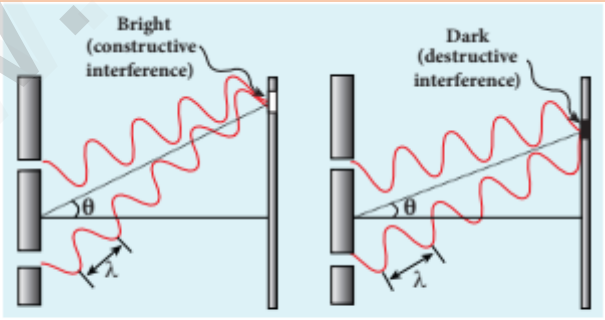


Figure 7.14 Formation of bright and dark fringes

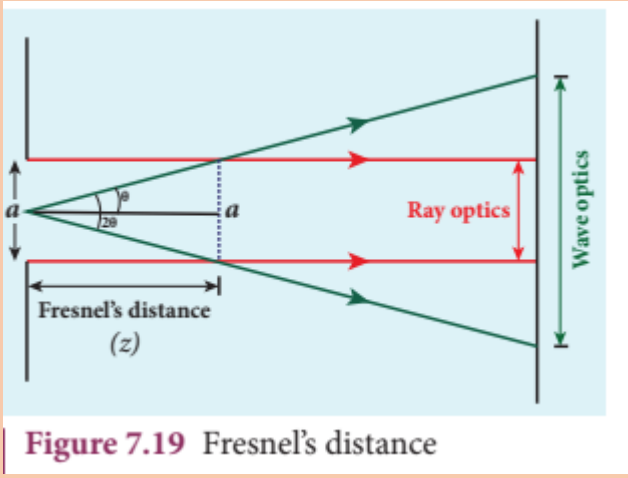


Figure 7.19 Fresnel's distance

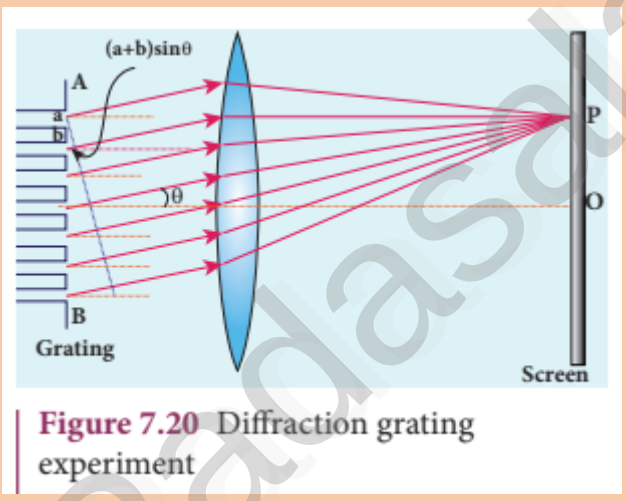


Figure 7.20 Diffraction grating experiment

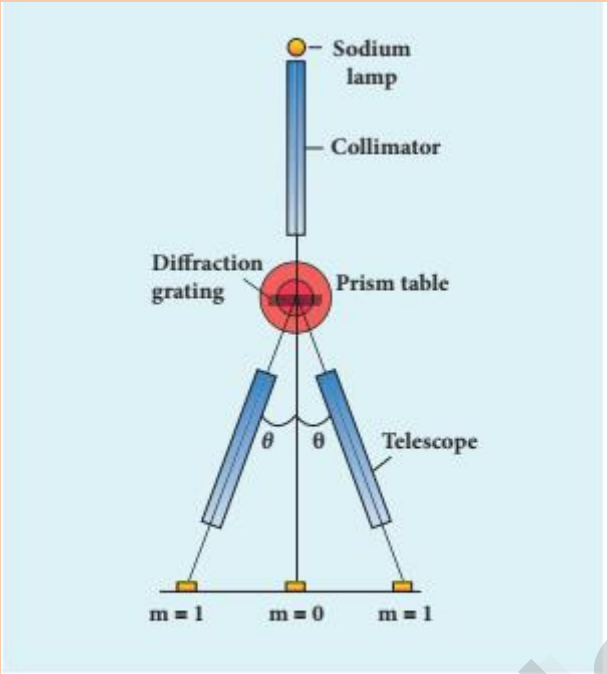


Figure 7.21 Determination of wavelength using grating

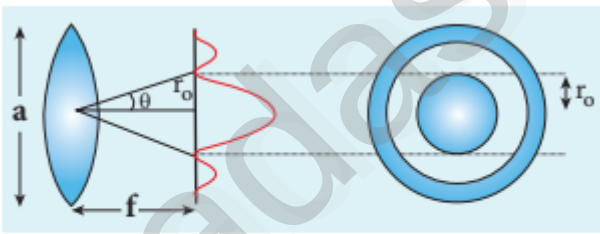


Figure 7.23 Airy's discs

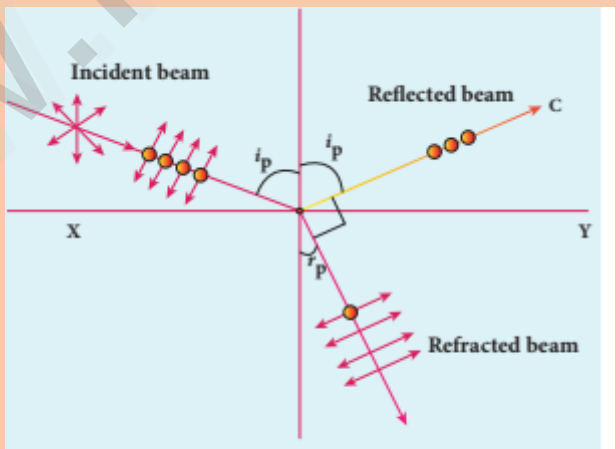


Figure 7.31 Polarisation by reflection

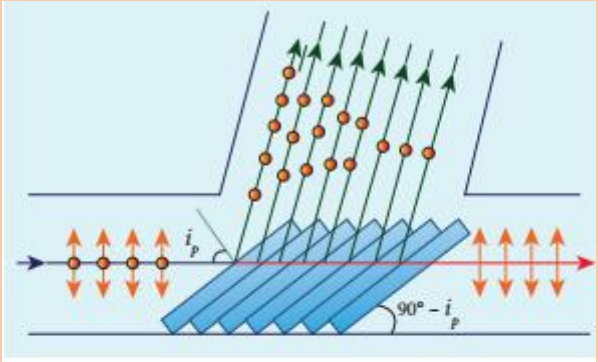


Figure 7.32 Pile of plates

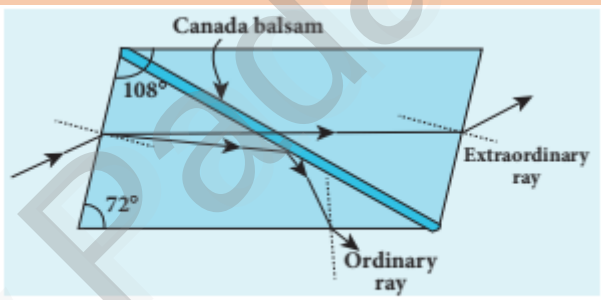


Figure 7.34 Nicol Prism

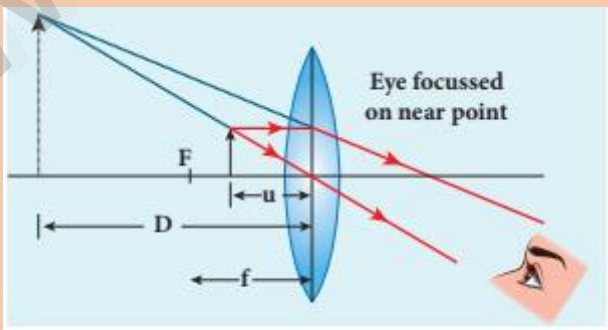


Figure 7.36 Near point focusing

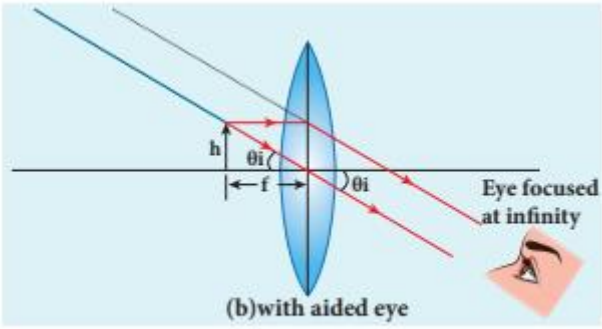


Figure 7.37 Normal focusing

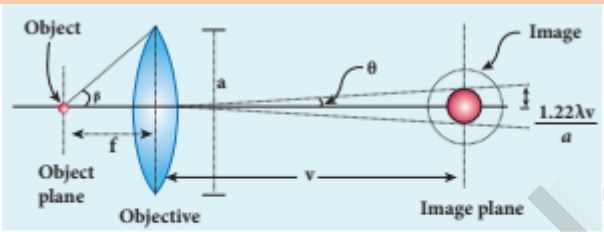


Figure 7.38 Resolving power of microscope

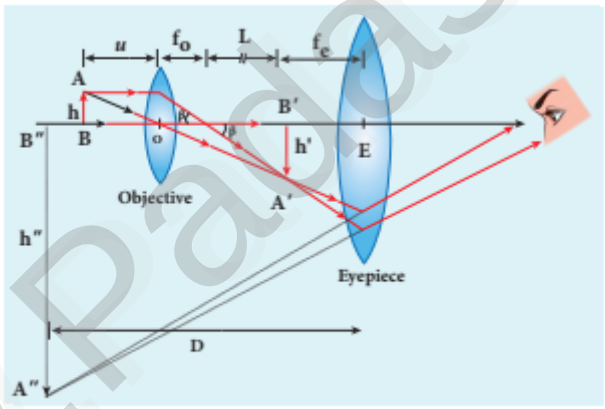


Figure 7.39 Compound microscope

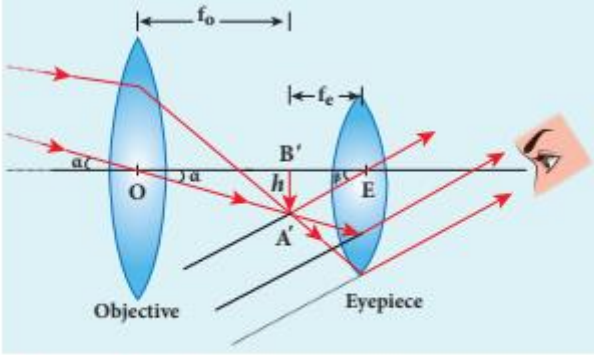


Figure 7.40 Astronomical telescope

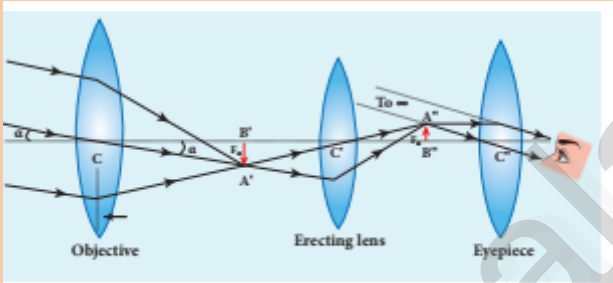


Figure 7.41 Terrestrial telescope

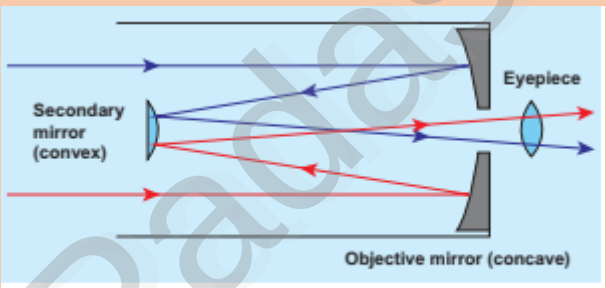


Figure 7.42 Reflecting telescope

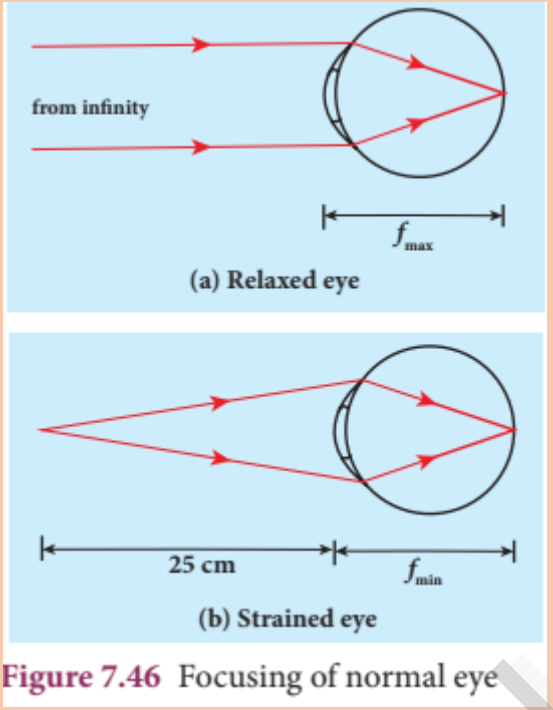


Figure 7.46 Focusing of normal eye

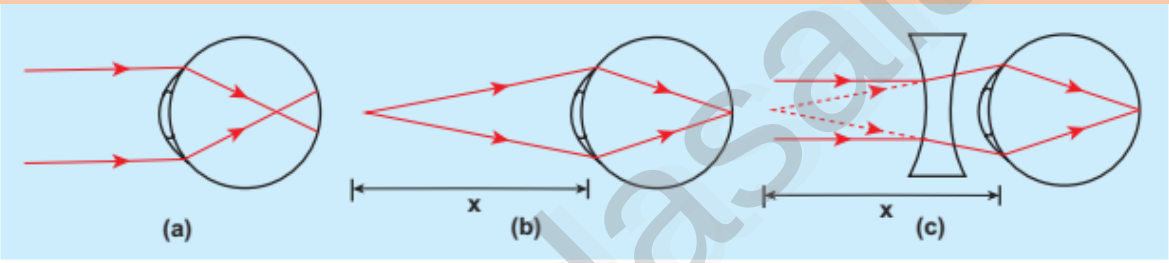


Figure 7.47 Myopic eye and correction

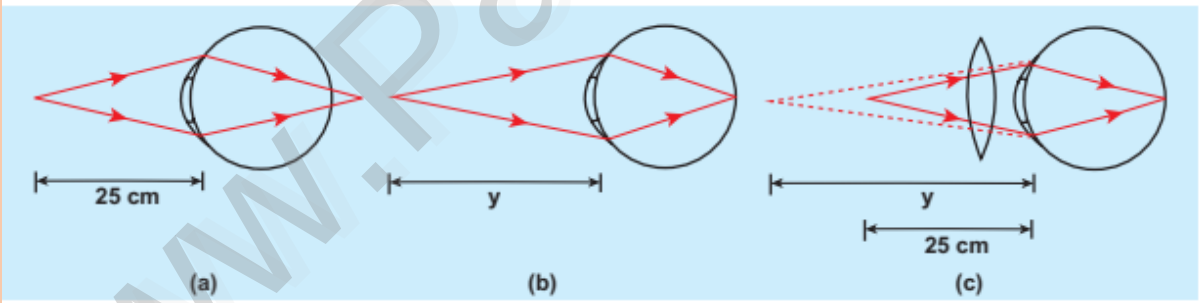


Figure 7.48 Hypermetropic eye and correction

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SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS – UNIT – 8–IMPORTANT DIAGRAMS

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16.12.2024

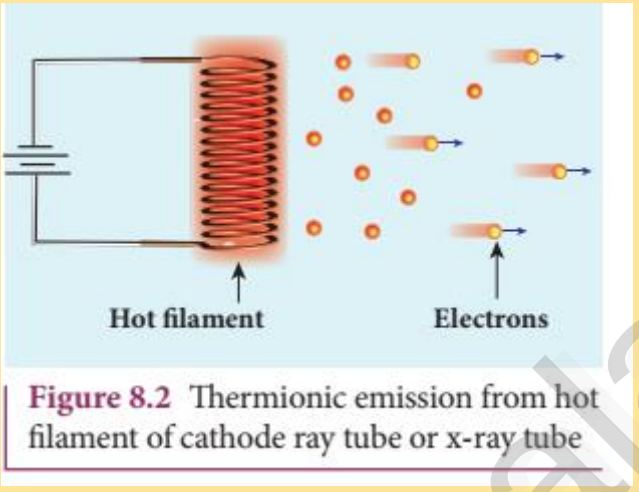


Figure 8.2 Thermionic emission from hot filament of cathode ray tube or x-ray tube

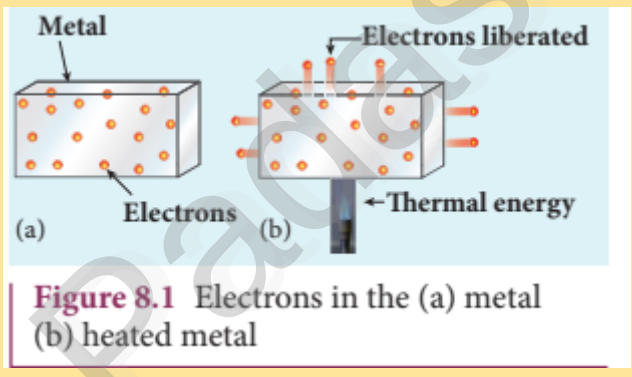


Figure 8.1 Electrons in the (a) metal (b) heated metal

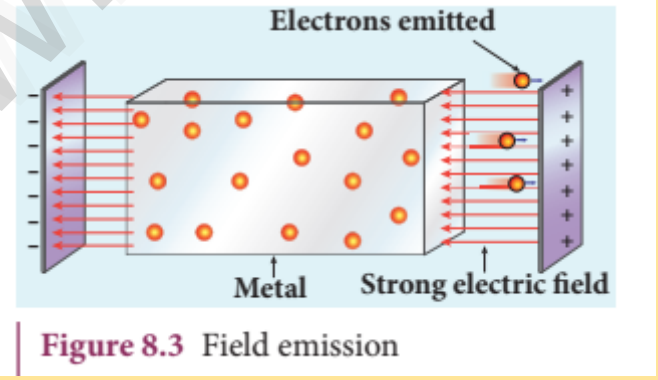


Figure 8.3 Field emission

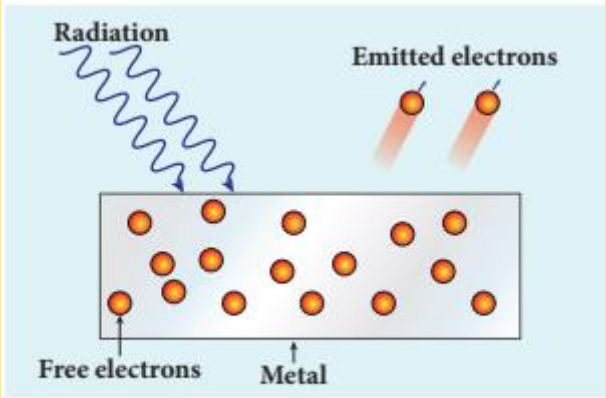


Figure 8.4 Photo electric emission

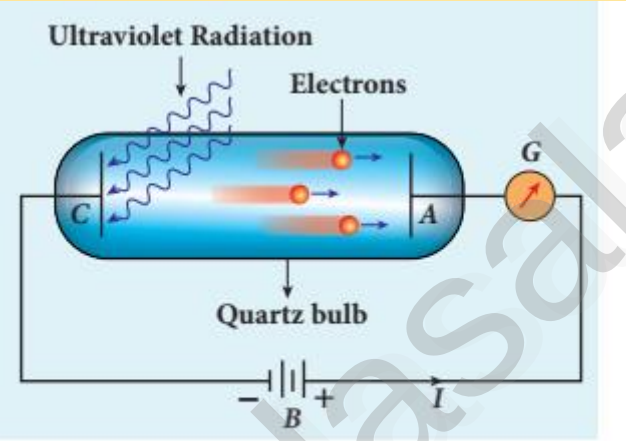


Figure 8.7 Experimental setup of Lenard

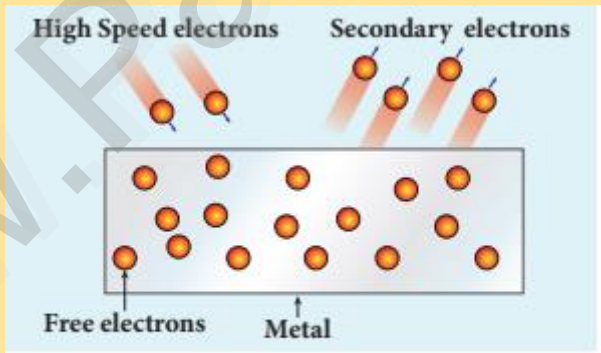


Figure 8.5 Secondary emission of electrons

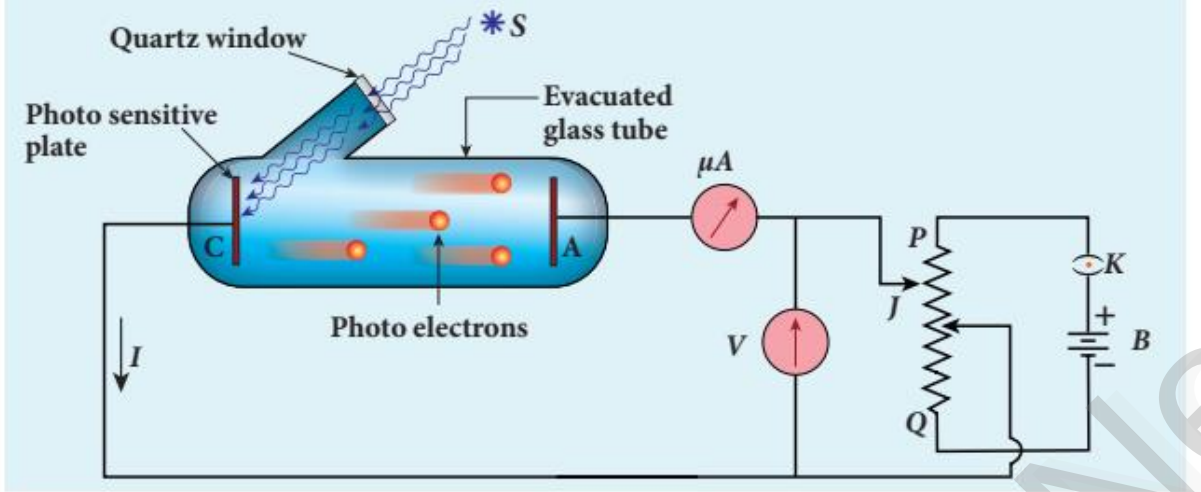


Figure 8.8 Experimental setup for the study of photoelectric effect

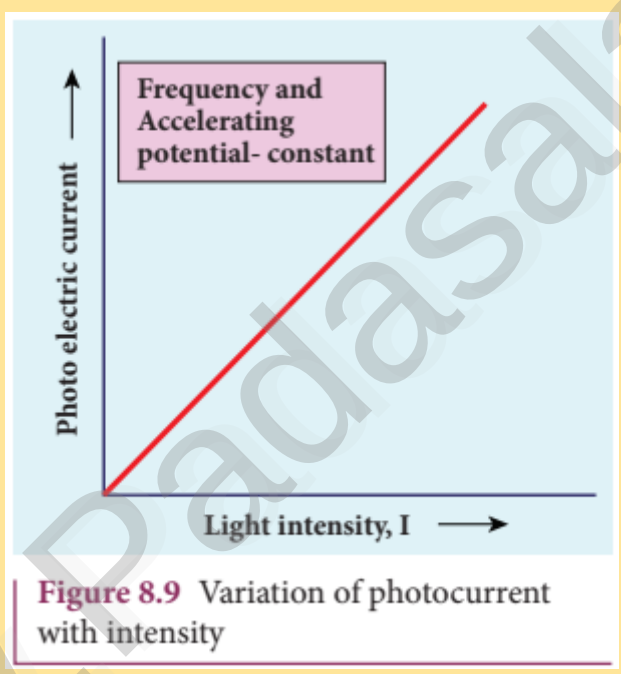


Figure 8.9 Variation of photocurrent with intensity

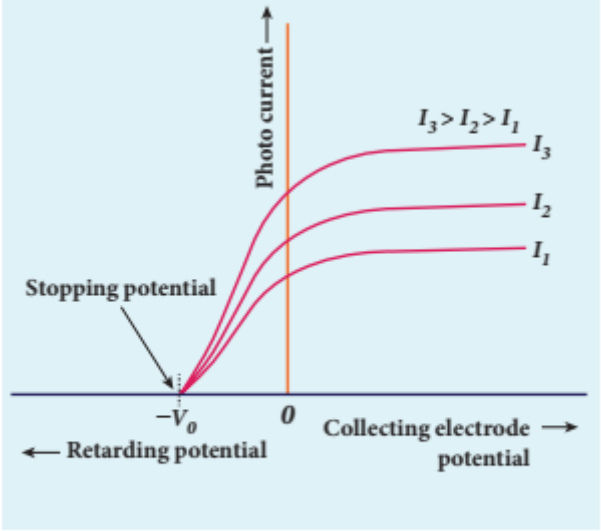


Figure 8.10 Variation of photocurrent with potential difference

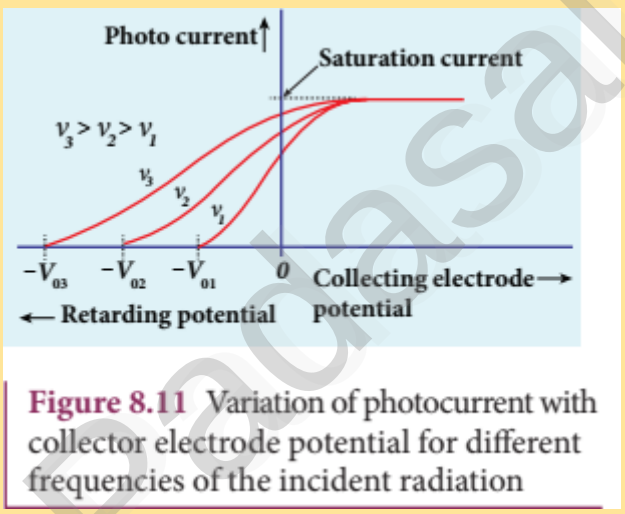


Figure 8.11 Variation of photocurrent with collector electrode potential for different frequencies of the incident radiation

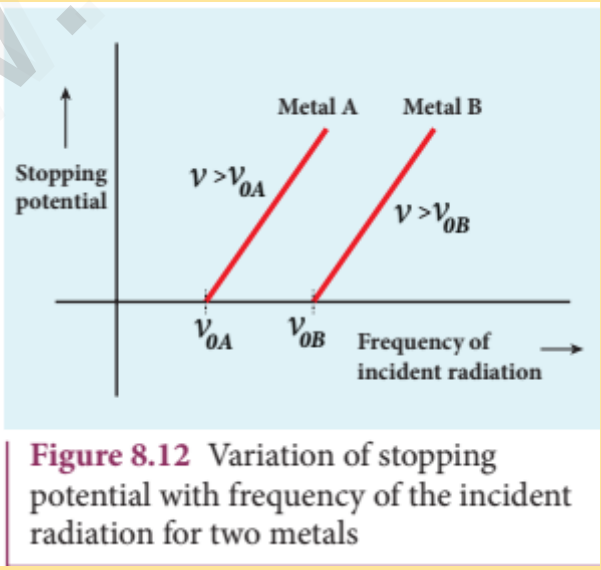


Figure 8.12 Variation of stopping potential with frequency of the incident radiation for two metals

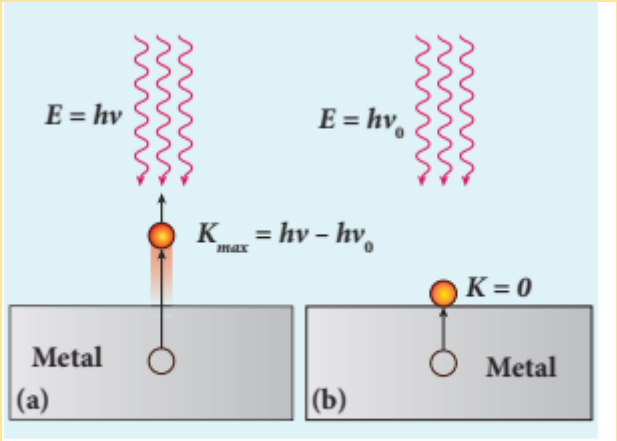


Figure 8.13 Emission of photoelectrons

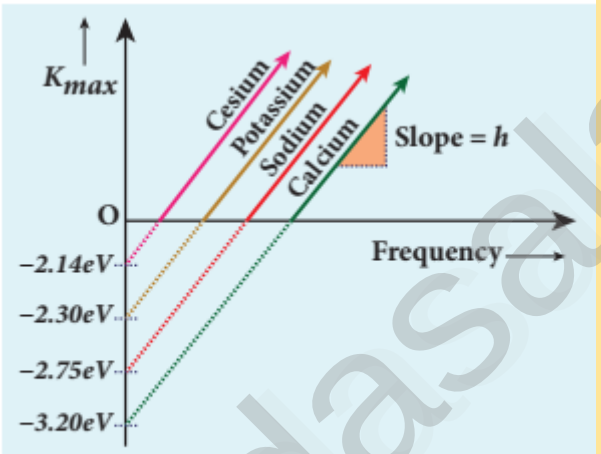


Figure 8.15 K_{max} vs ν graph for different metals

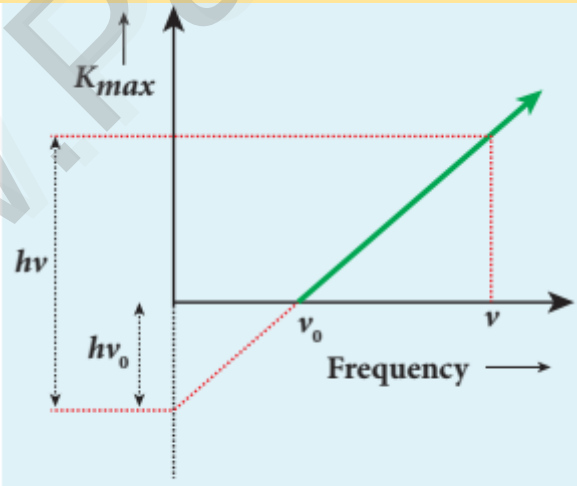


Figure 8.14 K_{max} vs ν graph

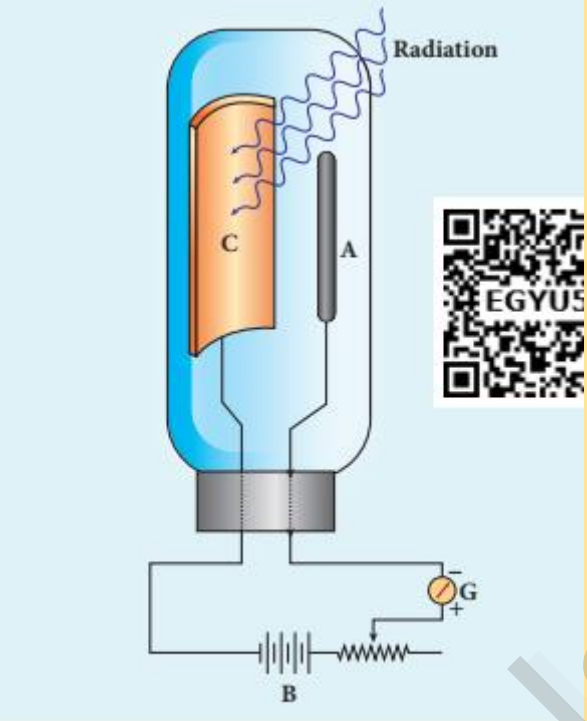


Figure 8.16 Construction of photo cell

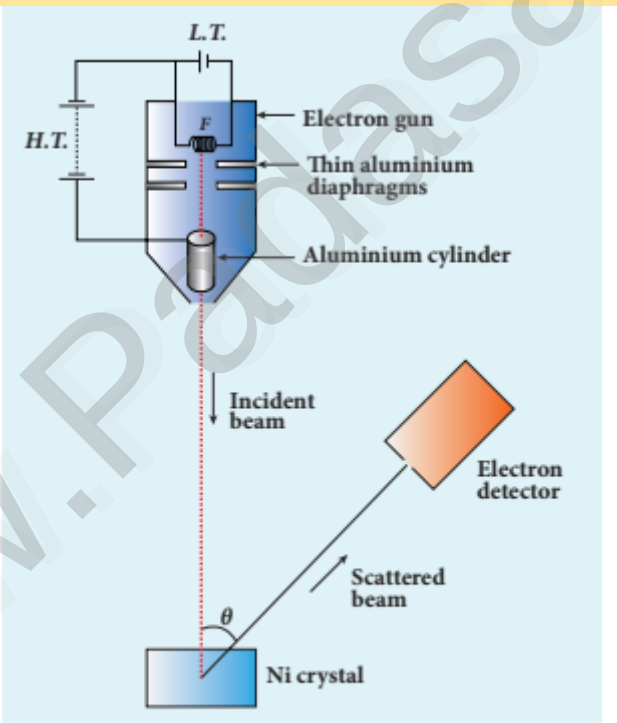


Figure 8.17 Experimental set up of Davisson – Germer experiment

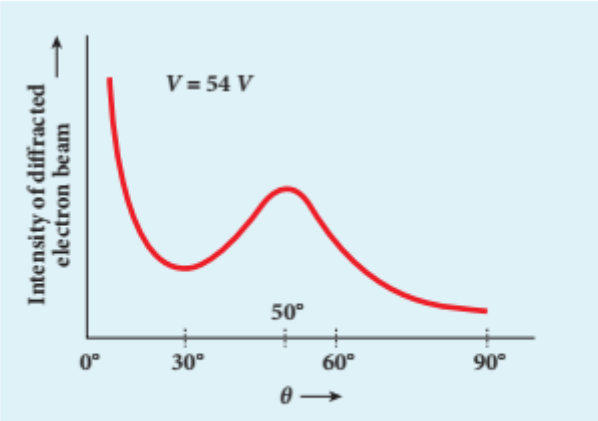
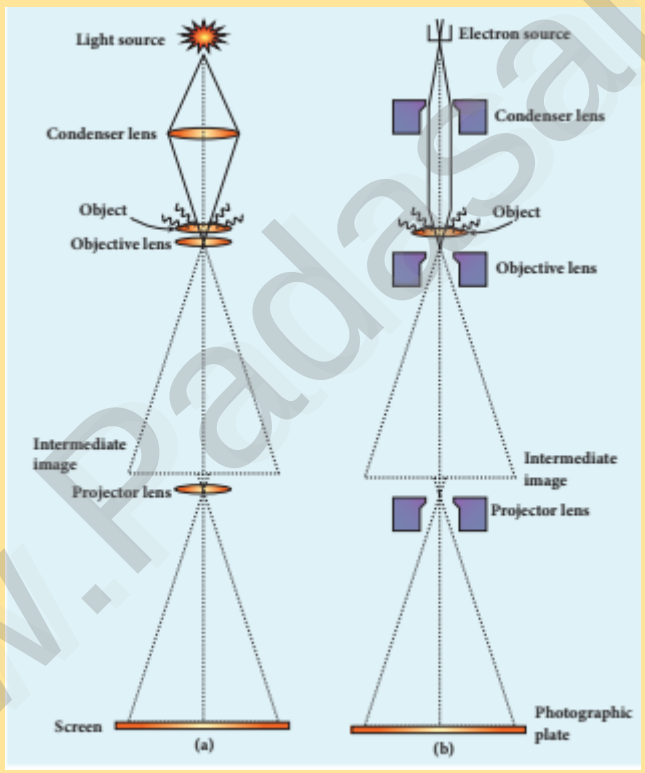


Figure 8.18 Variation of intensity of diffracted electron beam with the angle θ

ELECTRON MICROSCOPE



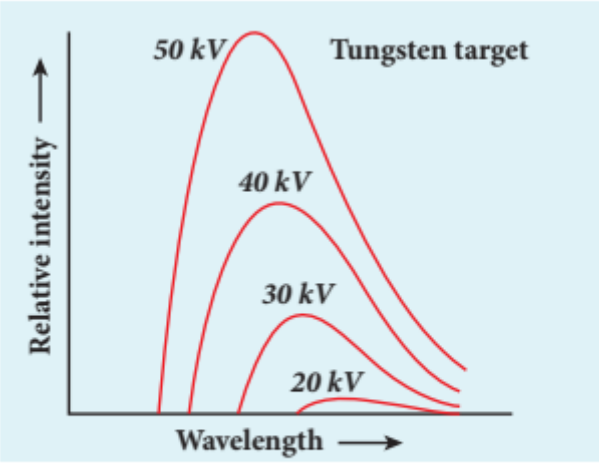


Figure 8.21 (a) X-ray spectra of tungsten at various accelerating potentials

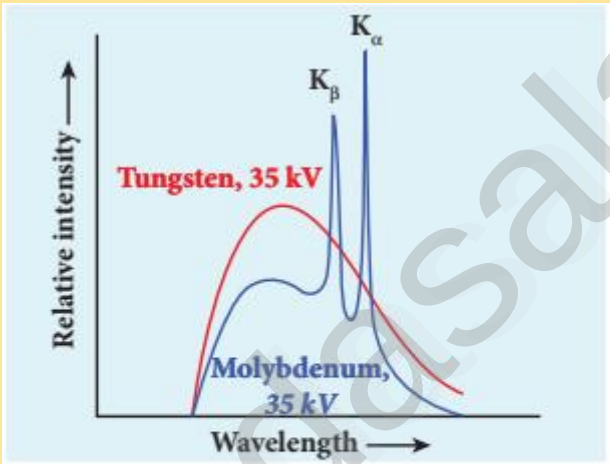


Figure 8.21 (b) X-ray spectra of tungsten and molybdenum at 35 *kV* accelerating potential

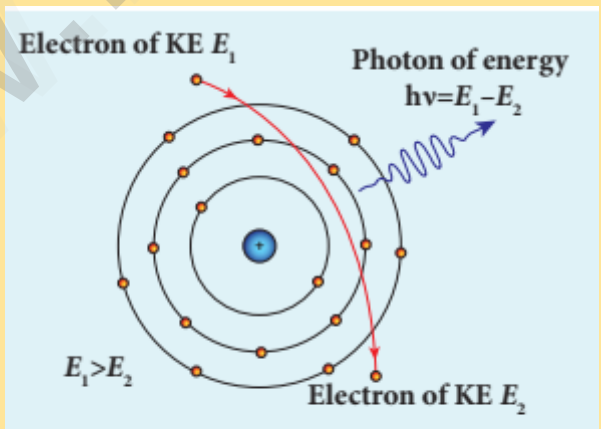


Figure 8.22 Bremsstrahlung photon from a decelerating electron

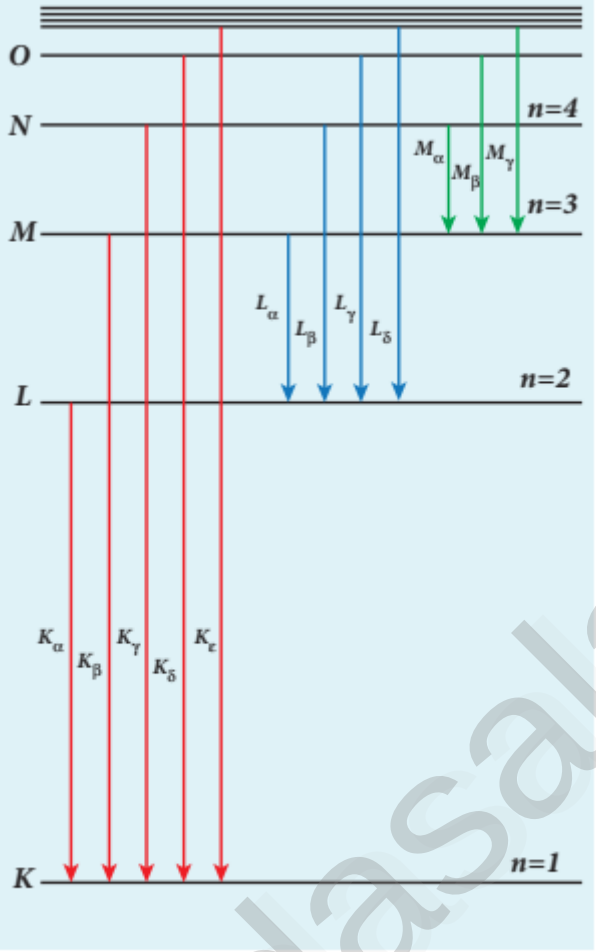


Figure 8.23 Origin of characteristic x-ray spectra

SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

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SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS UNIT – 10 –IMPORTANT DIAGRAMS

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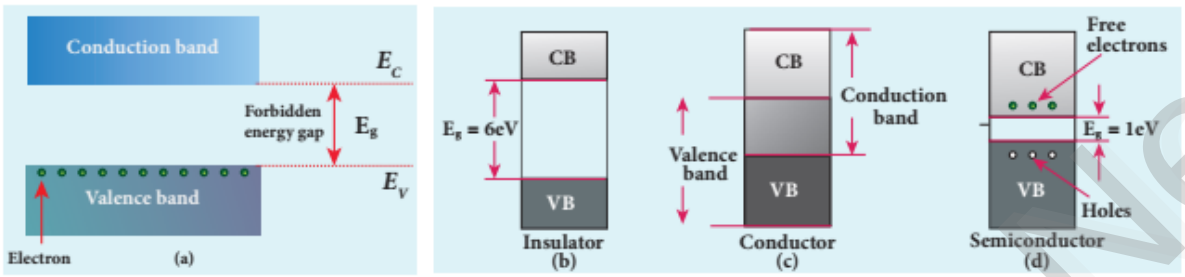
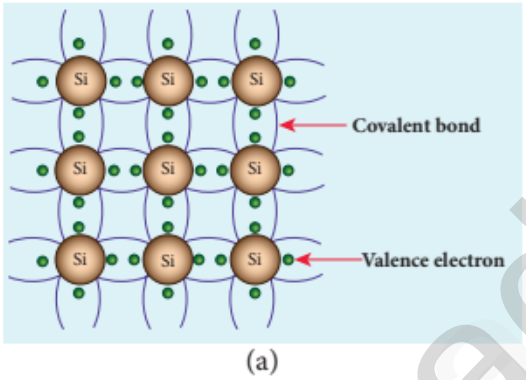


Figure 10.2 (a) Schematic representation of valence band, conduction band and forbidden energy gap. Energy band structure of (b) Insulator (c) Conductor (d) Semiconductor



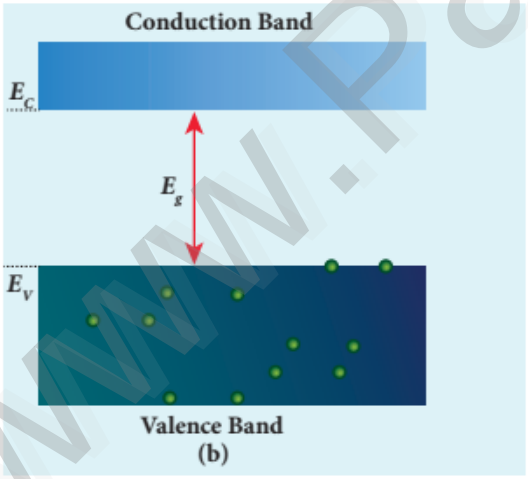
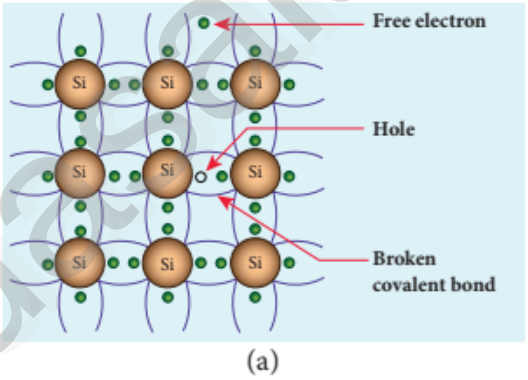


Figure 10.3 (a) Two dimensional crystal lattice of silicon (b) Valence band and conduction band of intrinsic semiconductor



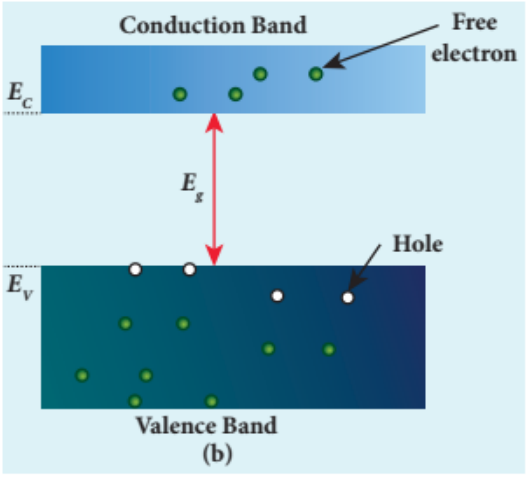
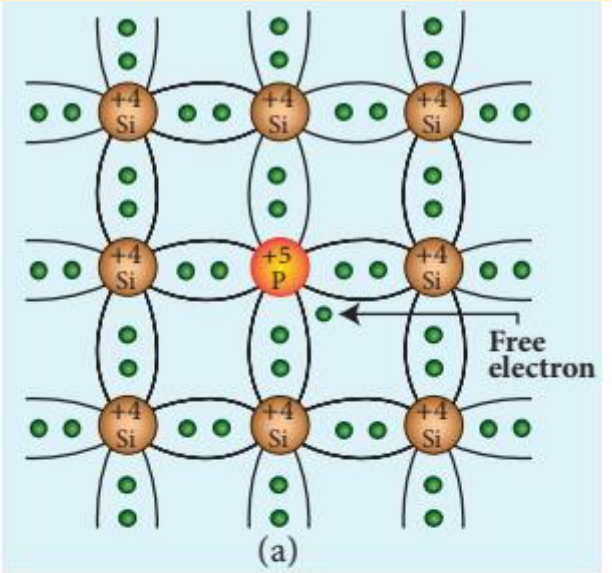


Figure 10.4 (a) The presence of free electron, hole and broken covalent bond in the intrinsic silicon crystal (b) Presence of electrons in the conduction band and holes in the valence band at room temperature



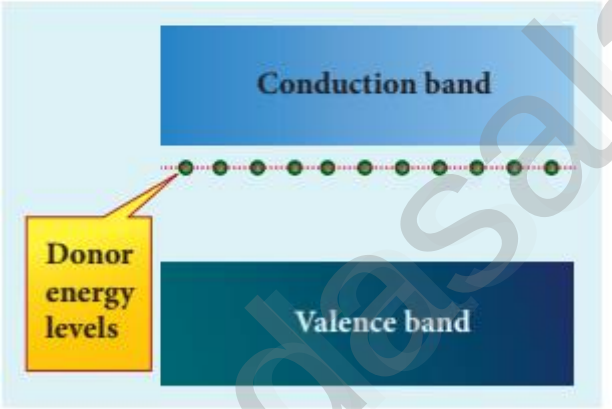


Figure 10.5 *n*-type extrinsic semiconductor: (a) Free electron which is loosely attached to the lattice (b) Representation of donor energy level

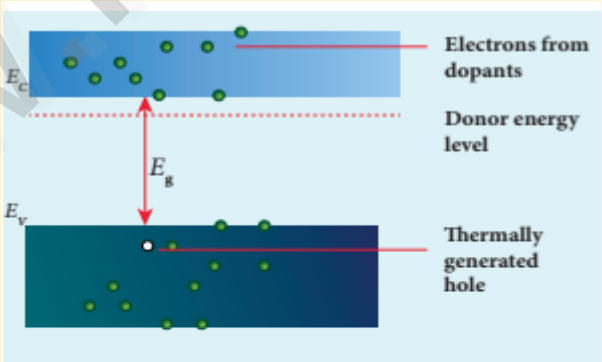


Figure 10.6 Thermally generated holes in the valence band and the free electrons generated by the dopants in the conduction band (*n*-type semiconductor)

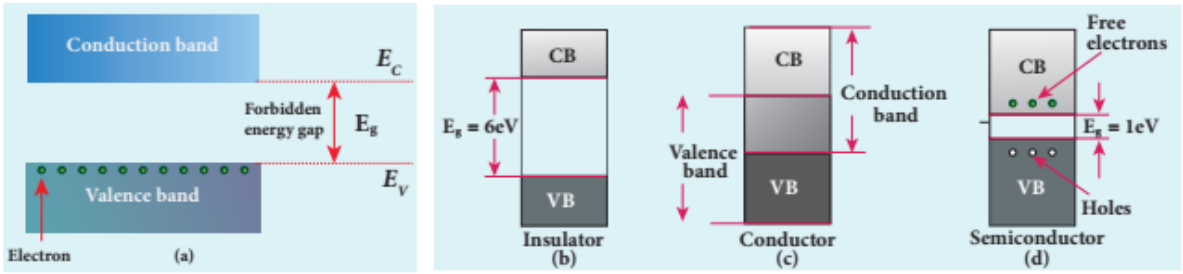
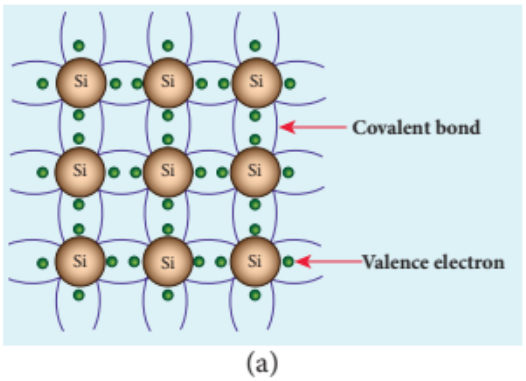


Figure 10.2 (a) Schematic representation of valence band, conduction band and forbidden energy gap. Energy band structure of (b) Insulator (c) Conductor (d) Semiconductor



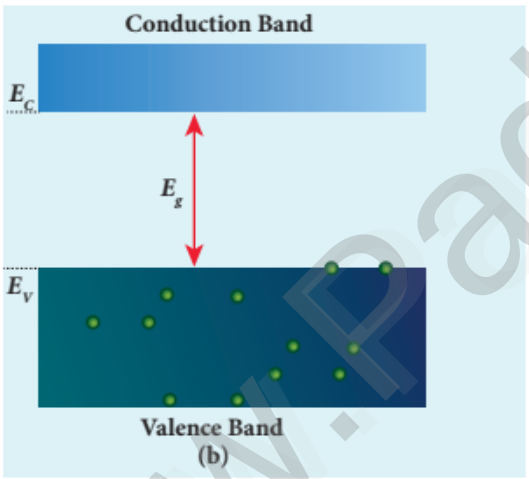
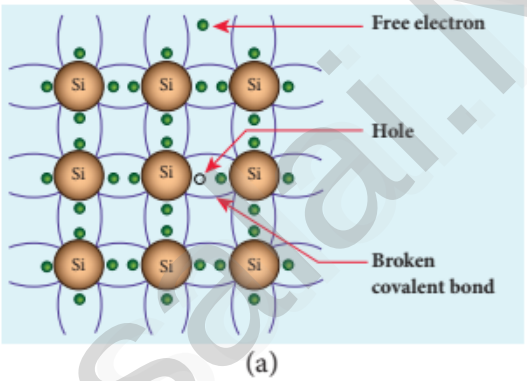


Figure 10.3 (a) Two dimensional crystal lattice of silicon (b) Valence band and conduction band of intrinsic semiconductor



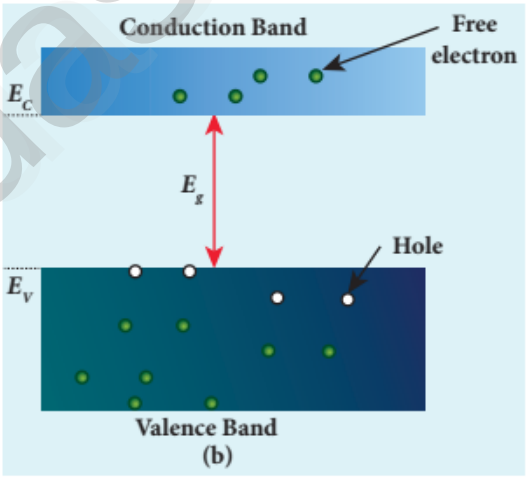


Figure 10.4 (a) The presence of free electron, hole and broken covalent bond in the intrinsic silicon crystal (b) Presence of electrons in the conduction band and holes in the valence band at room temperature

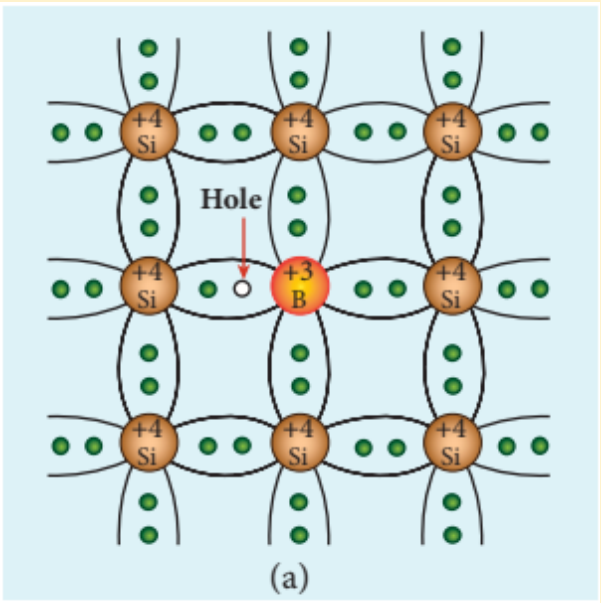


Figure 10.7 *p*-type extrinsic semiconductor
(a) Hole generated by the dopant
(b) Representation of acceptor energy level

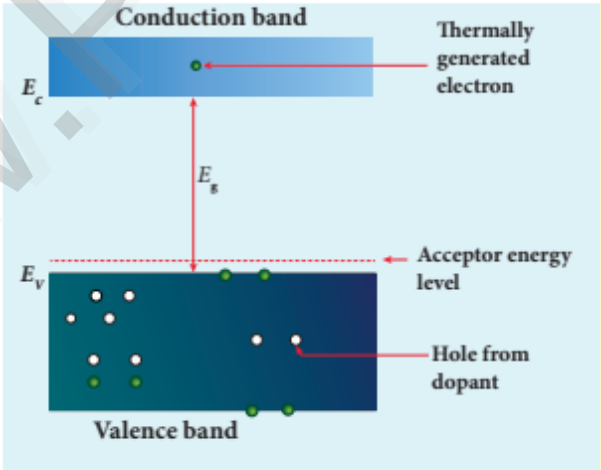


Figure 10.8 Thermally generated electron in the conduction band and the holes generated by the dopants in the valence band (*p*-type semiconductor)

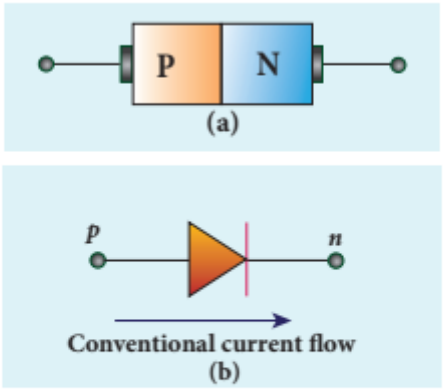


Figure 10.11 *p-n* junction diode
(a) Schematic representation
(b) Circuit symbol

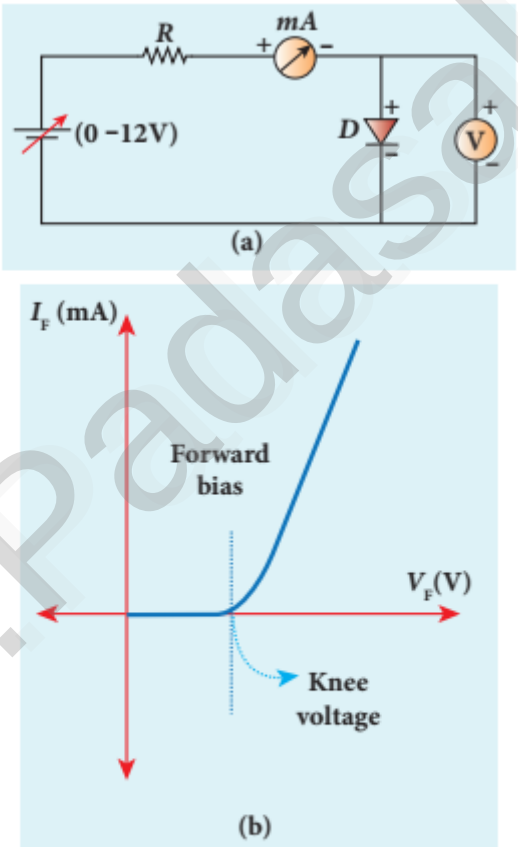


Figure 10.14 *p-n* junction diode
(a) Diode under forward bias
(b) Forward characteristics

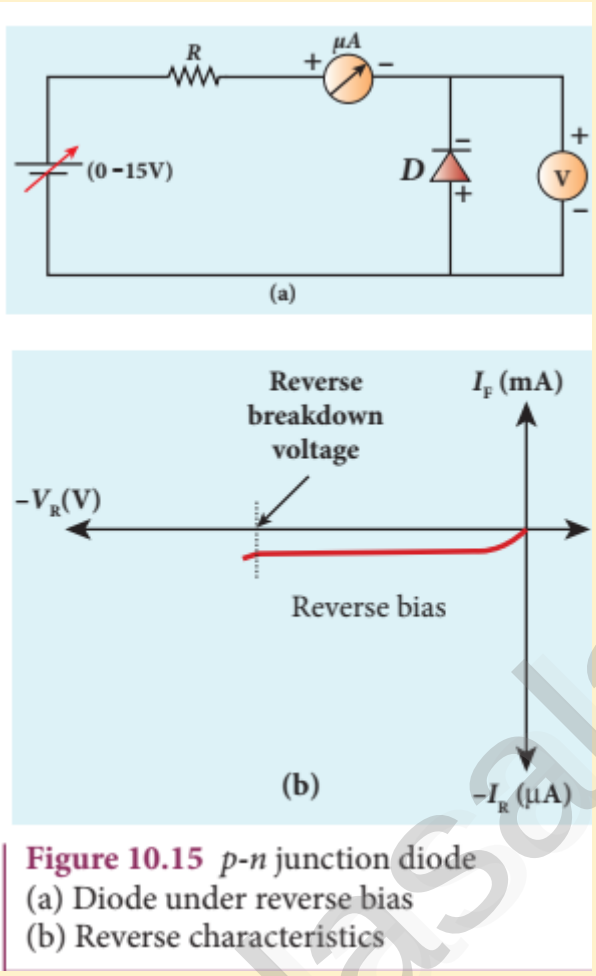


Figure 10.15 *p-n* junction diode
(a) Diode under reverse bias
(b) Reverse characteristics

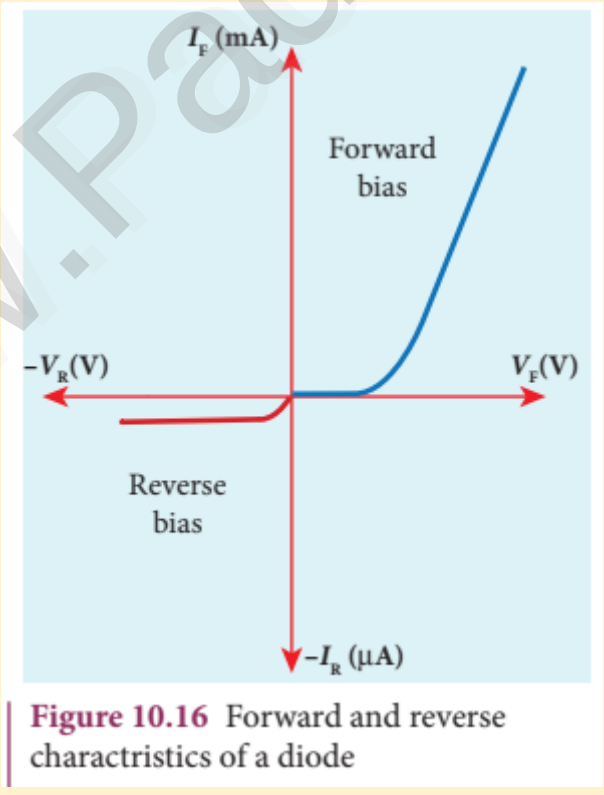
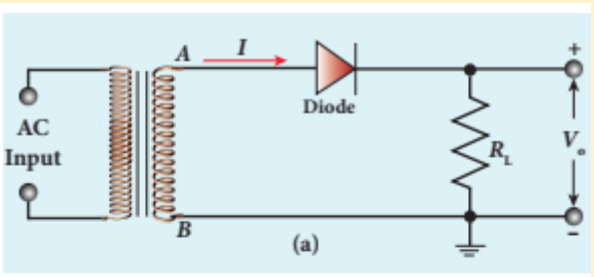


Figure 10.16 Forward and reverse charactristics of a diode



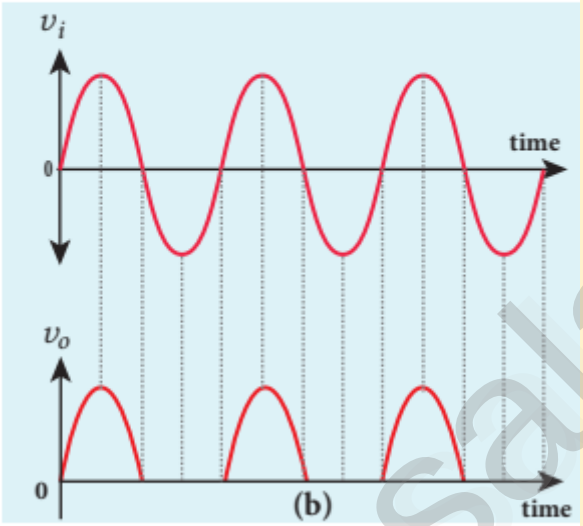
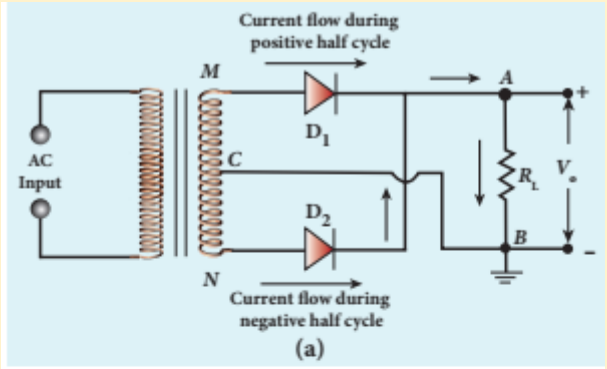


Figure 10.17 (a) Half wave rectifier circuit (b) Input and output waveforms



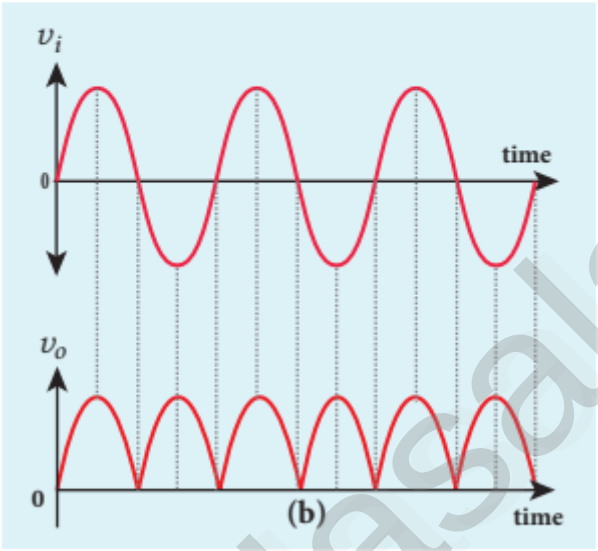


Figure 10.18 (a) Full wave rectifier circuit (b) Input and output waveforms

Figure 10.19 Zener diode
(a) Commercial picture (b) Circuit symbol

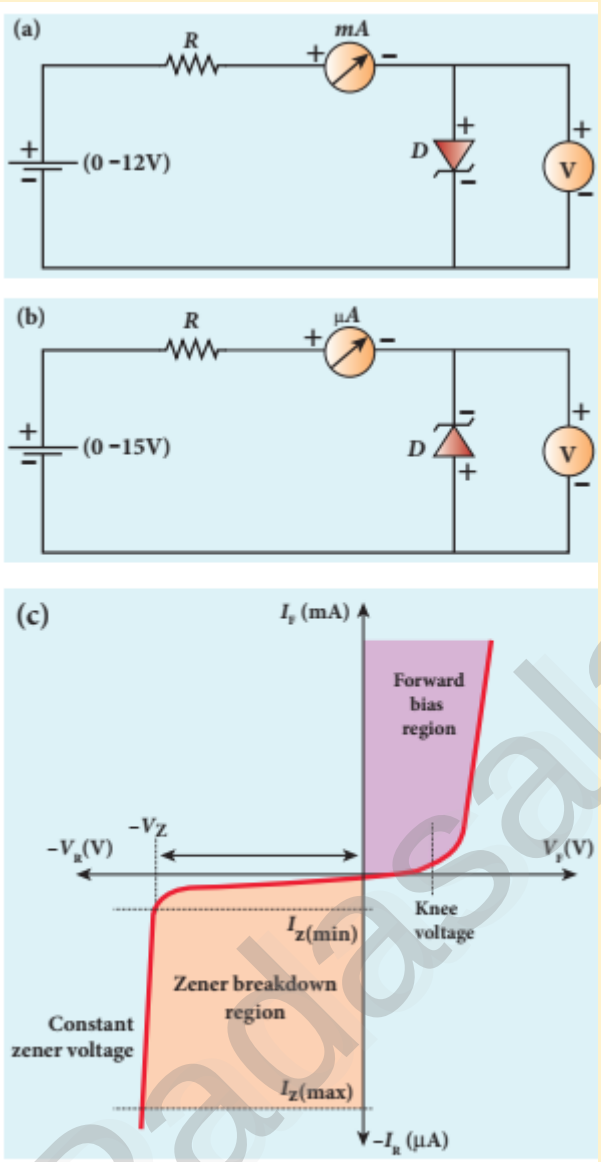


Figure 10.20 Zener diode (a) Forward bias (b) Reverse bias (c) V-I characteristics

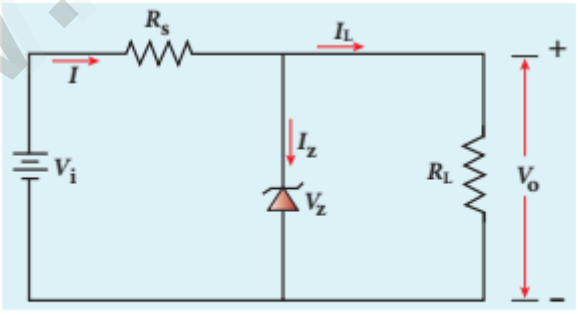


Figure 10.21 Circuit to study voltage regulation by Zener diode

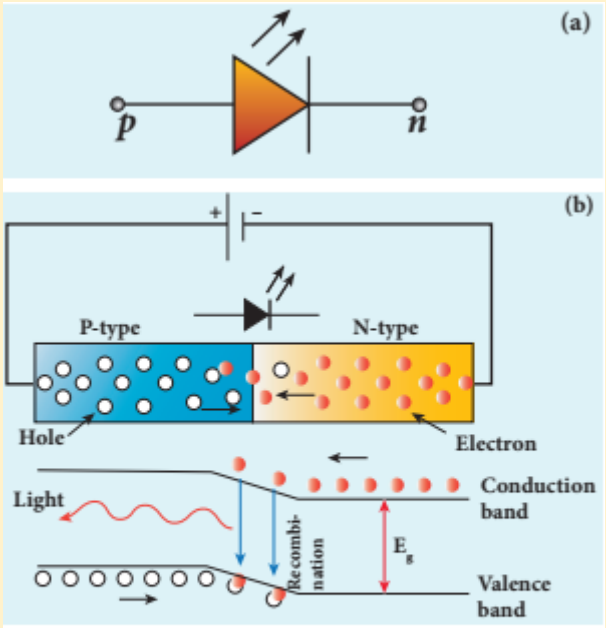


Figure 10.22 (a) Circuit symbol of LED (b) Schematic diagram to explain recombination process

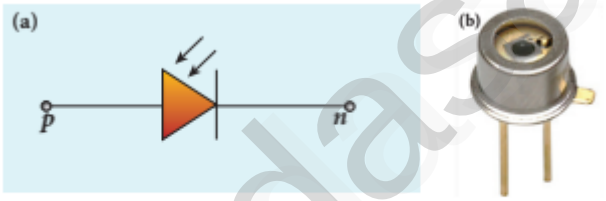
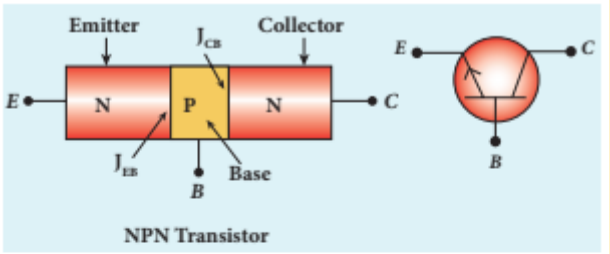
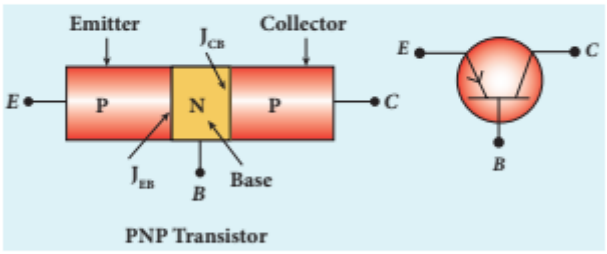


Figure 10.23 (a) Circuit symbol (b) Schematic view of photodiode



(a)



(b)

Figure 10.25 Schematic Diagram of (a) NPN transistor and circuit symbol (b) PNP transistor and circuit symbol

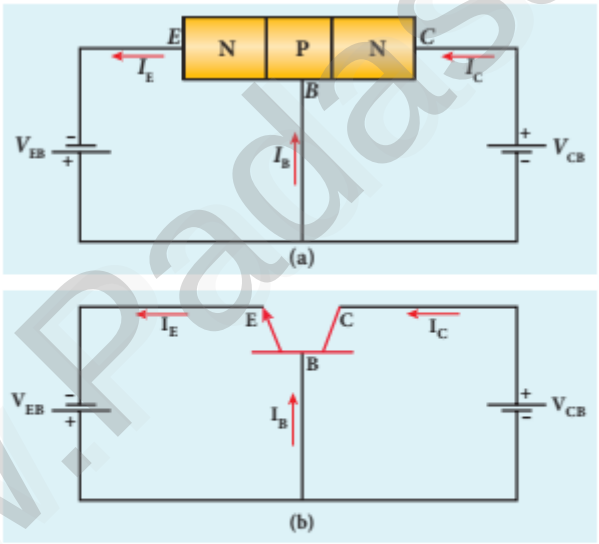


Figure 10.26 NPN transistor in common base configuration (a) Schematic circuit diagram (b) Circuit symbol

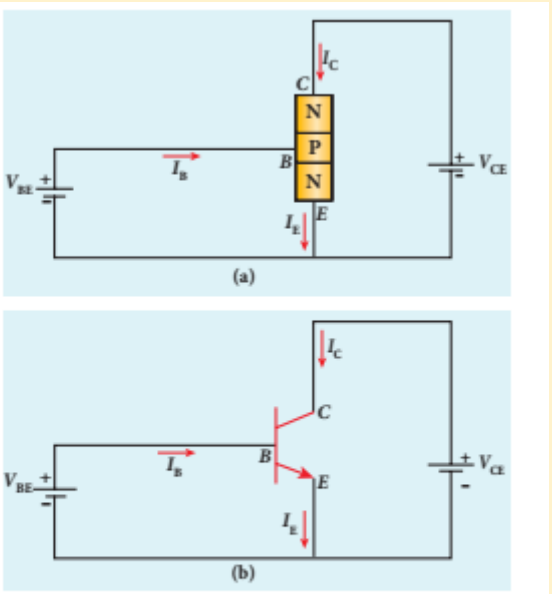


Figure 10.27 NPN transistor in common emitter configuration (a) Schematic circuit diagram (b) Circuit symbol

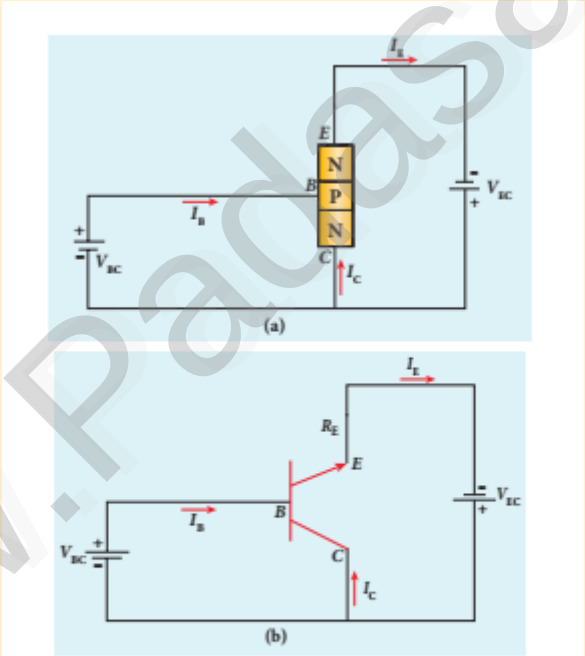


Figure 10.28 NPN transistor in common collector configuration (a) Schematic circuit diagram (b) Circuit symbol

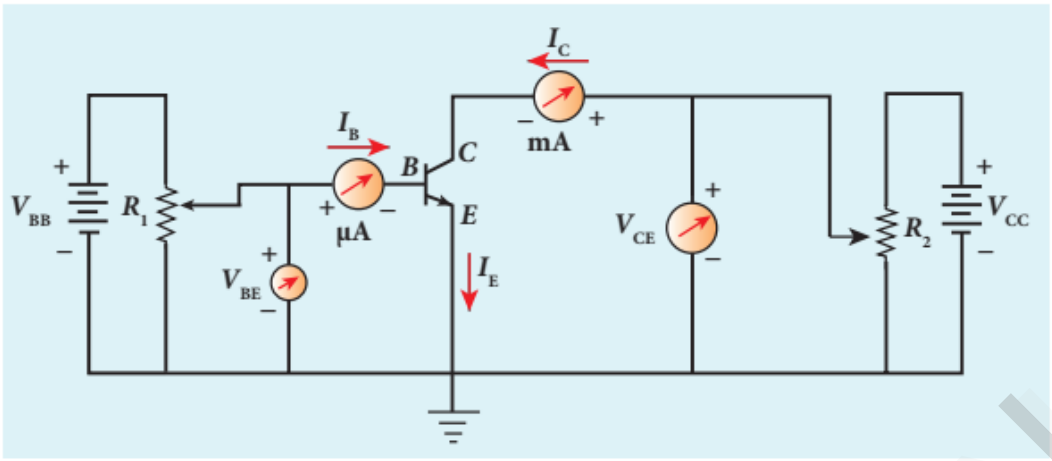


Figure 10.30 NPN transistor in common emitter configuration

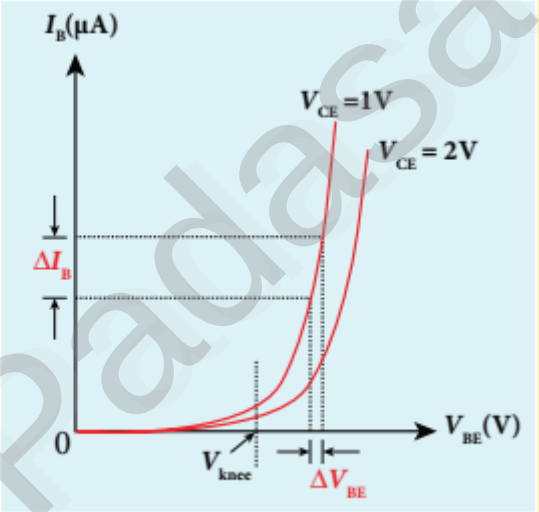


Figure 10.31 Input characteristics

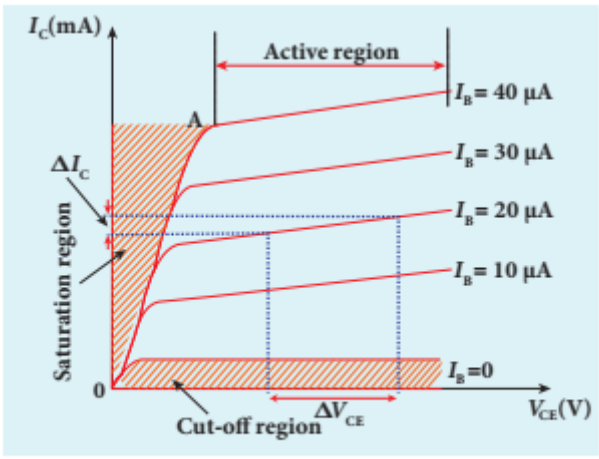


Figure 10.32 Output characteristics

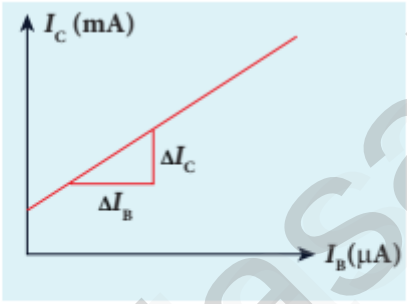


Figure 10.33 Current transfer characteristics

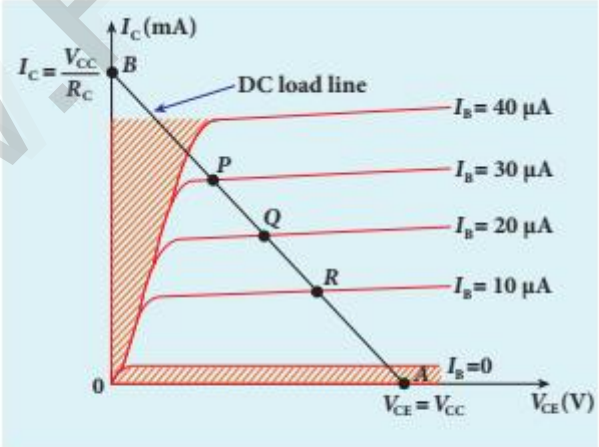


Figure 10.34 Output characteristics of a transistor in common emitter mode with the DC load line

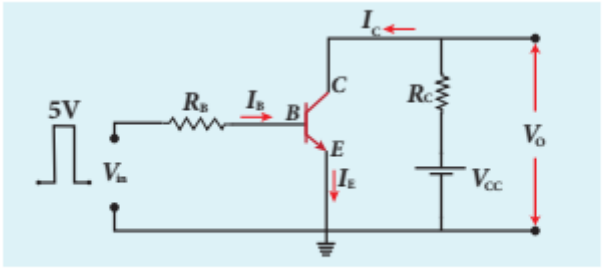
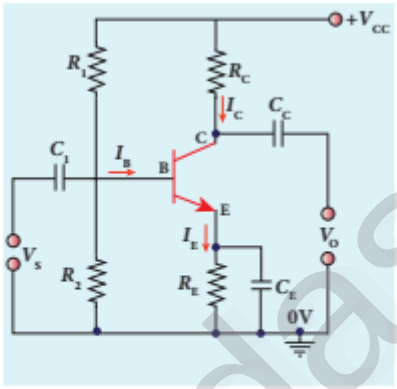


Figure 10.35 Transistor as a switch



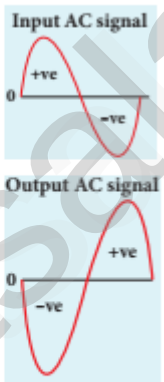


Figure 10.36 (a) Transistor as an amplifier (b) Input and output waveforms showing 180^0 phase reversal.

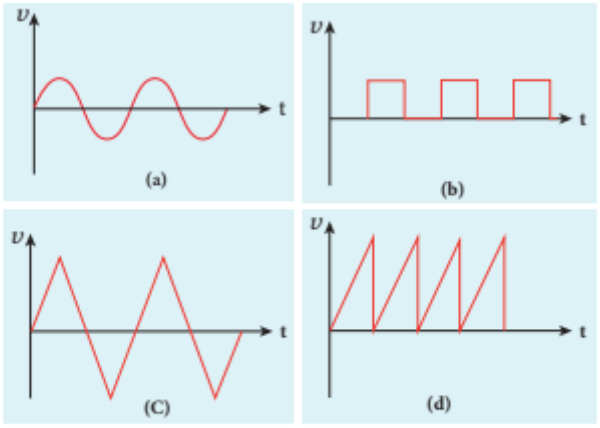


Figure 10.37 (a) Sinusoidal waveform (b) Square waveform (c) Triangular waveform (d)Sawtooth waveform

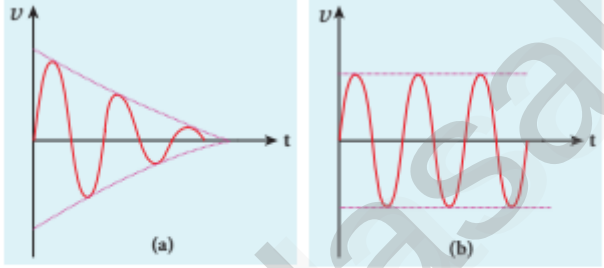


Figure 10.38 (a) Damped oscillations (b) Undamped oscillations

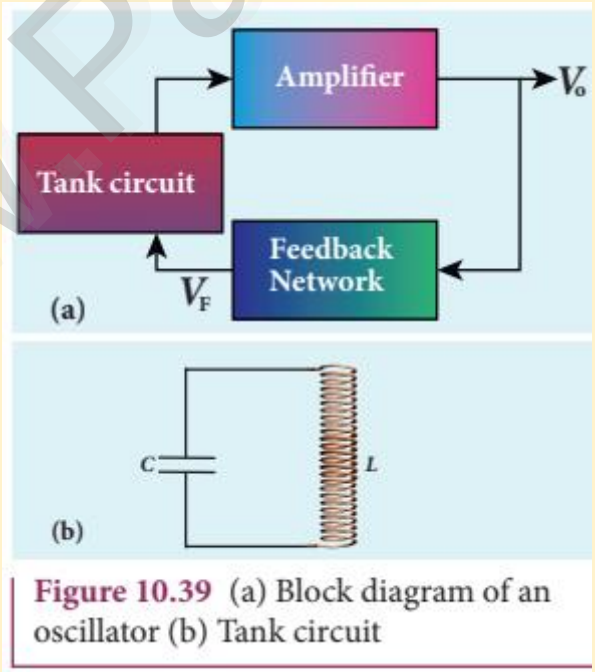


Figure 10.39 (a) Block diagram of an oscillator (b) Tank circuit

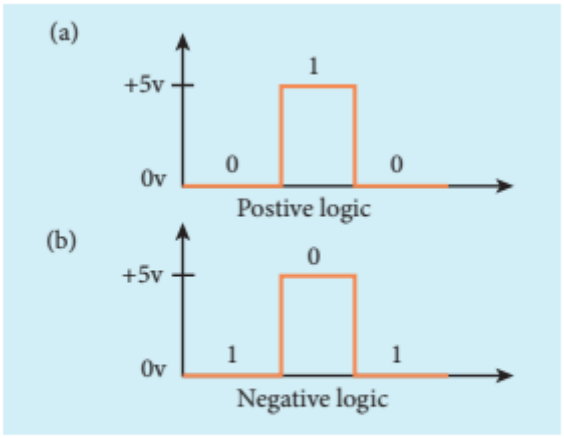
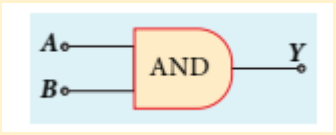
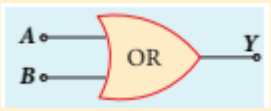
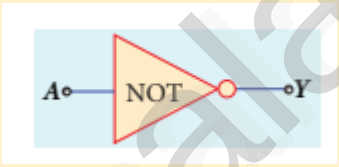
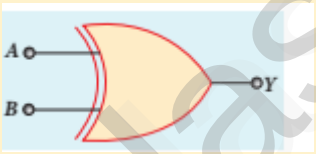


Figure 10.40 (a) Positive logic (b) Negative logic









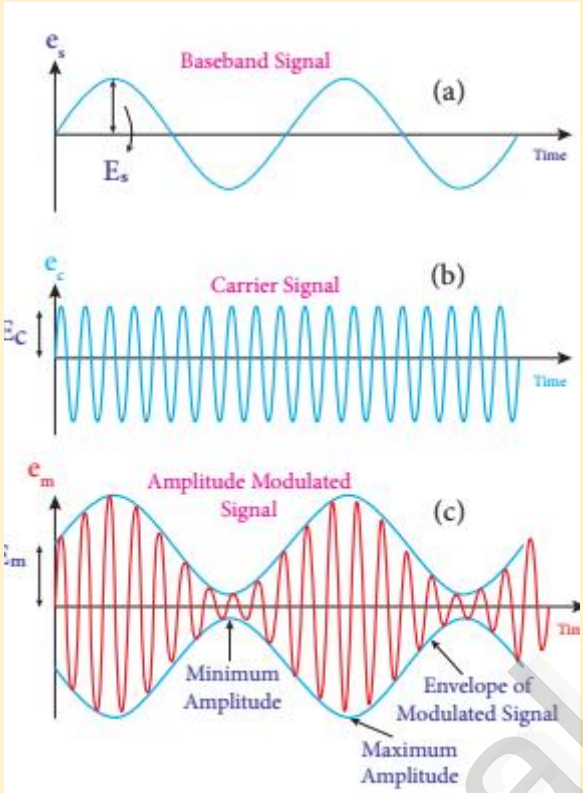


Figure 10.50 Amplitude Modulation
(a) Baseband signal (b) Carrier signal
(c) Modulated signal

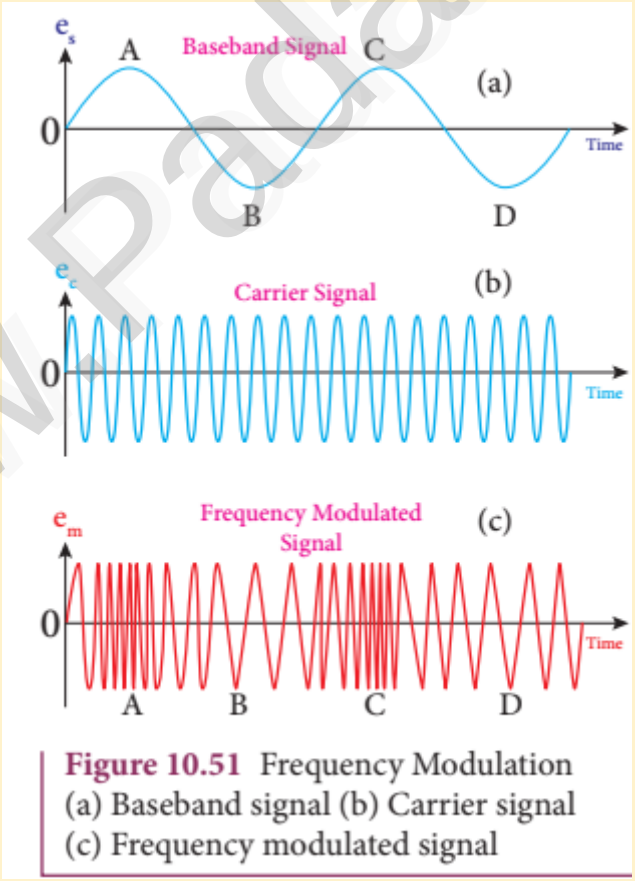


Figure 10.51 Frequency Modulation
(a) Baseband signal (b) Carrier signal
(c) Frequency modulated signal

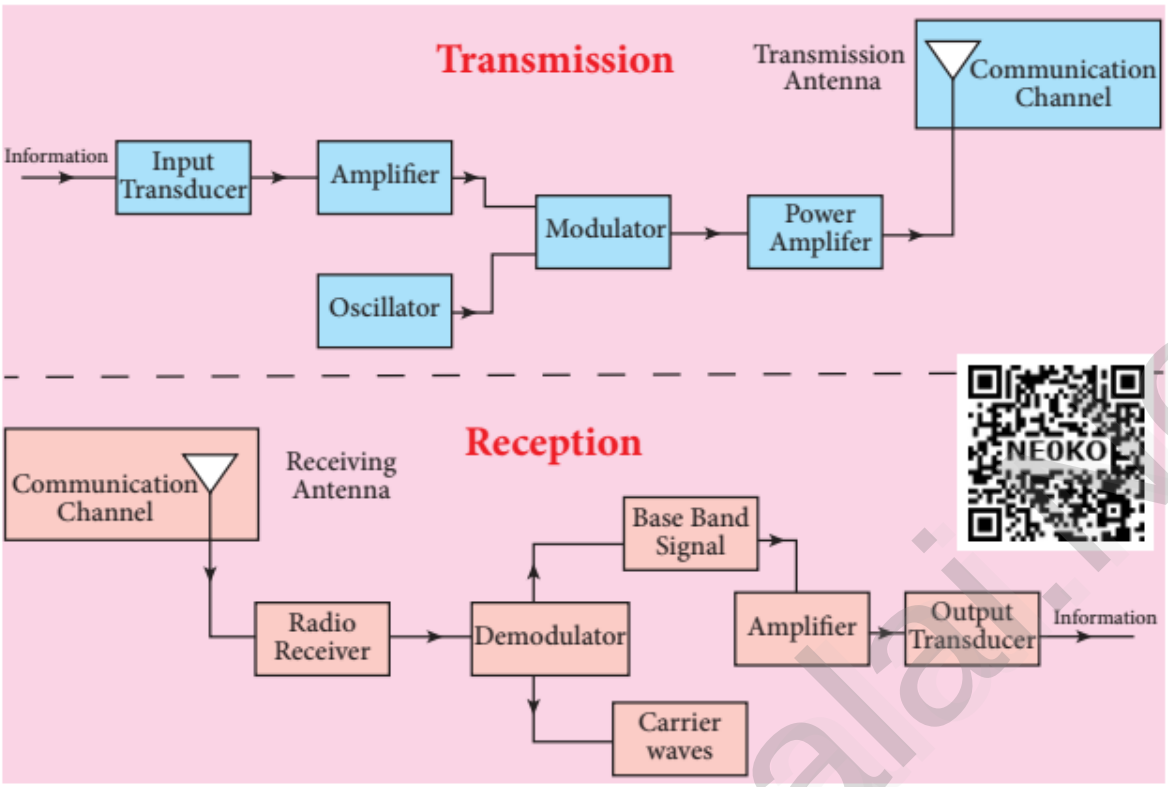


Figure 10.52 Block diagram of transmission and reception of voice signals

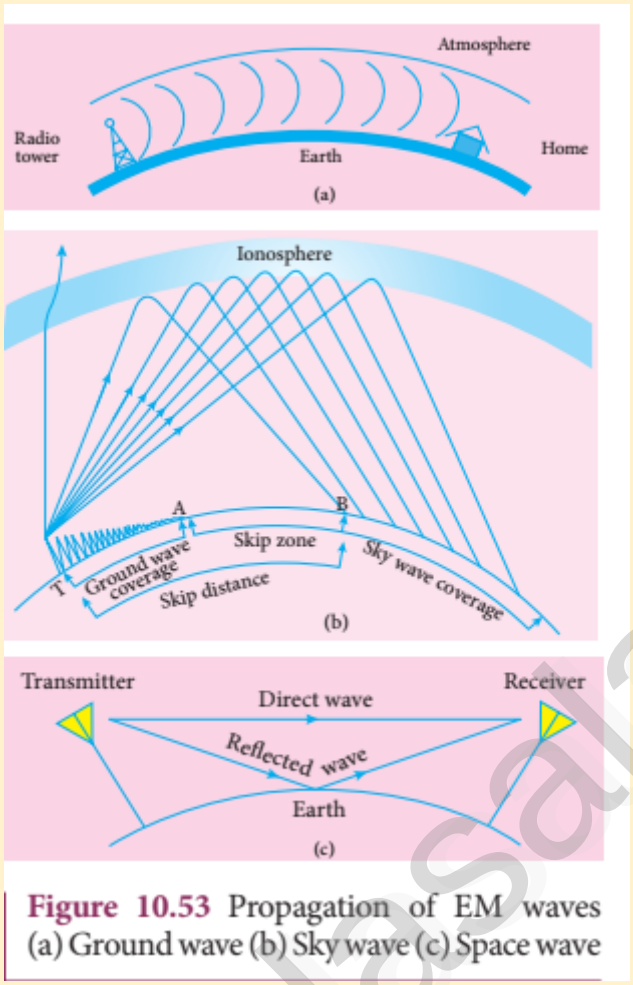


Figure 10.53 Propagation of EM waves (a) Ground wave (b) Sky wave (c) Space wave

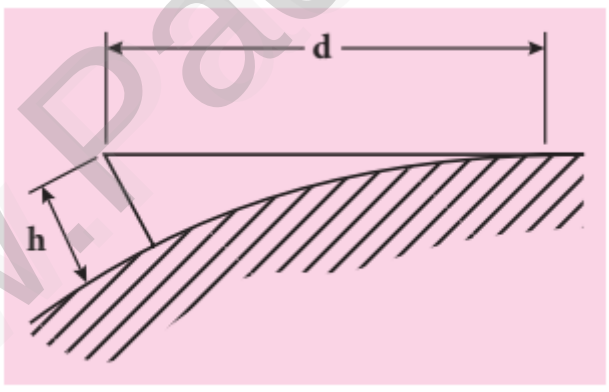


Figure 10.54 Distance of coverage

SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS UNIT – 10 –IMPORTANT DIAGRAMS

PREPARED BY Dr.G.THIRUMOORTHI,M.Sc,B.Ed,Ph.D ,PHYSICS

(16.12.2024),,8610560810, thiruphysics1994@gmail.com

SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS UNIT – 9 –IMPORTANT DIAGRAMS

PREPARED BY Dr.G.THIRUMOORTHI,M.Sc,B.Ed,Ph.D ,PHYSICS

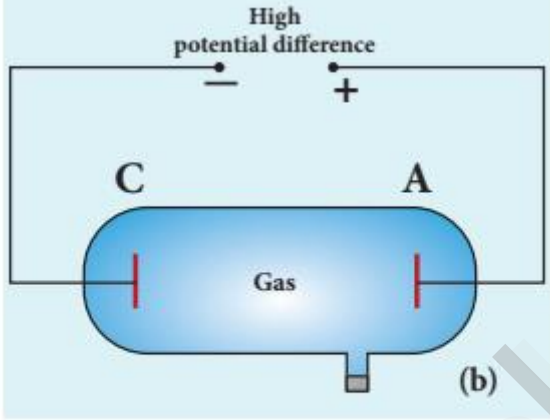


Figure 9.2 Discharge tube (a) real picture (b) schematic diagram

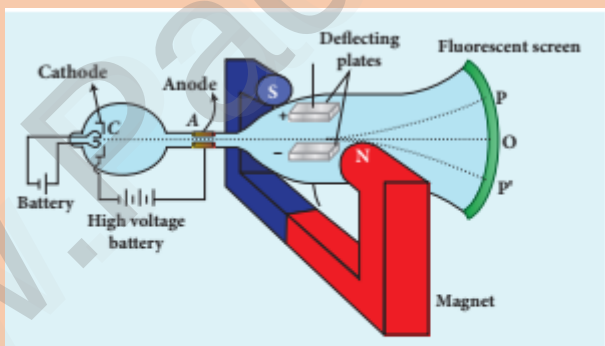


Figure 9.3 Arrangement of J.J. Thomson experiment to determine the specific charge of an electron

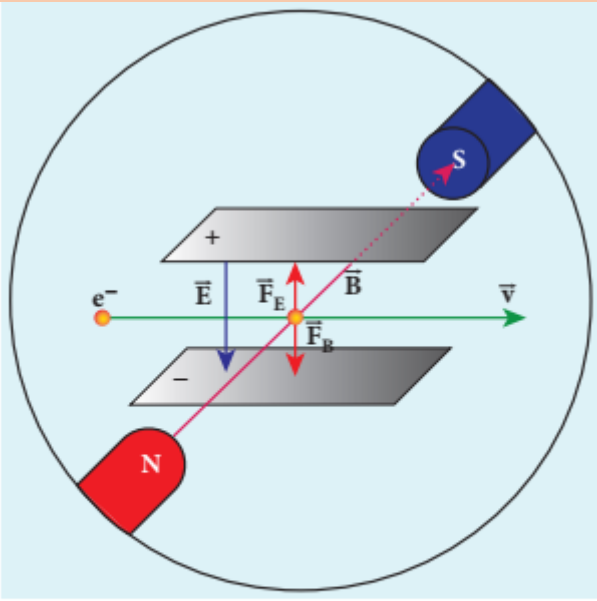


Figure 9.4 Electric force balancing the magnetic force – the path of electron beam is a straight line

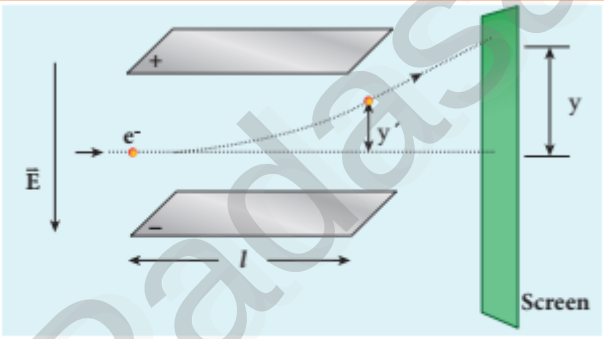


Figure 9.5 Deviation of path by applying uniform electric field

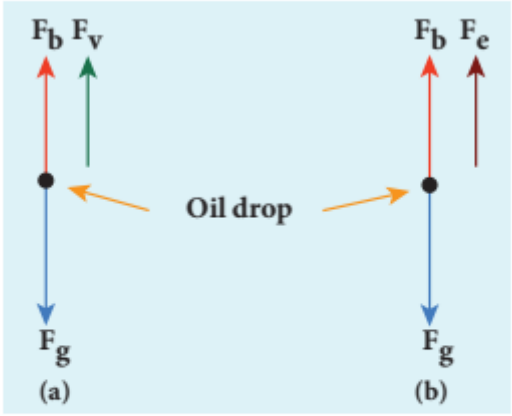
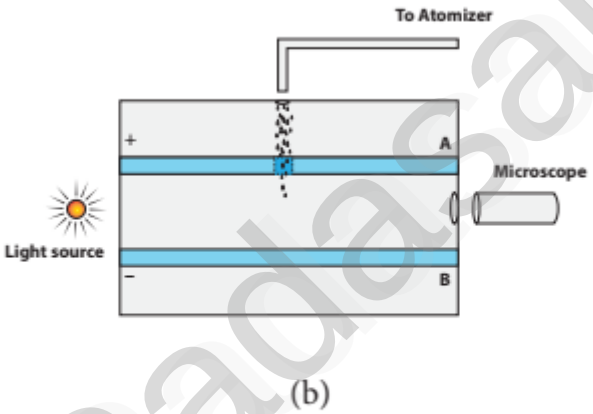


Figure 9.7 Free body diagram of the oil drop – (a) without electric field (b) with electric field



(b)

Figure 9.6 Millikan's experiment (a) real picture and schematic picture (b) Side view picture

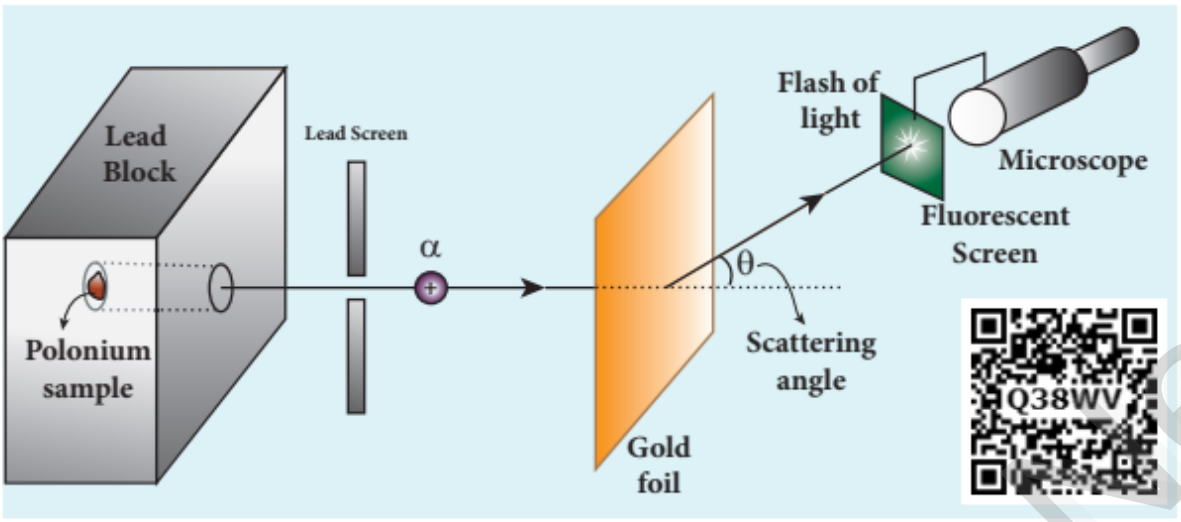


Figure 9.9 Schematic diagram for scattering of alpha particles experiment by Rutherford

(a) Distance of closest approach

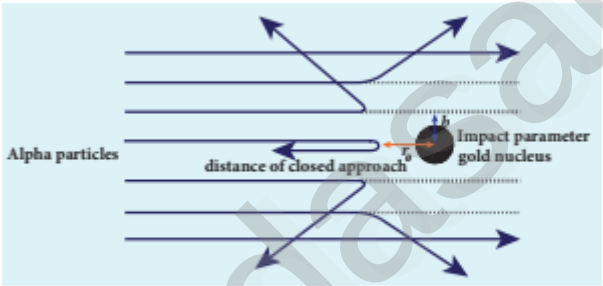


Figure 9.11 Distance of closest approach and impact parameter

(b) Impact parameter

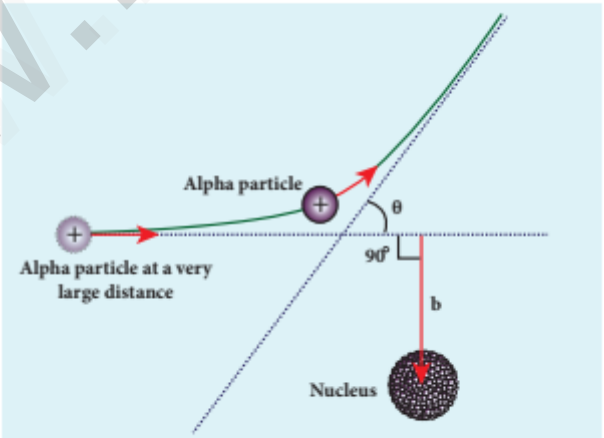


Figure 9.12 Impact parameter

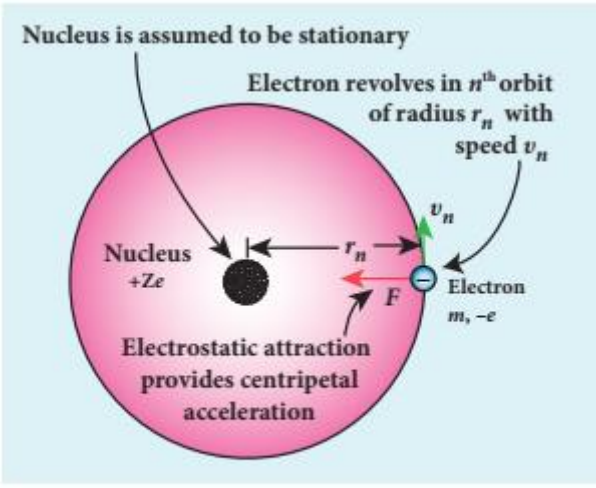


Figure 9.17 Electron revolving around the nucleus

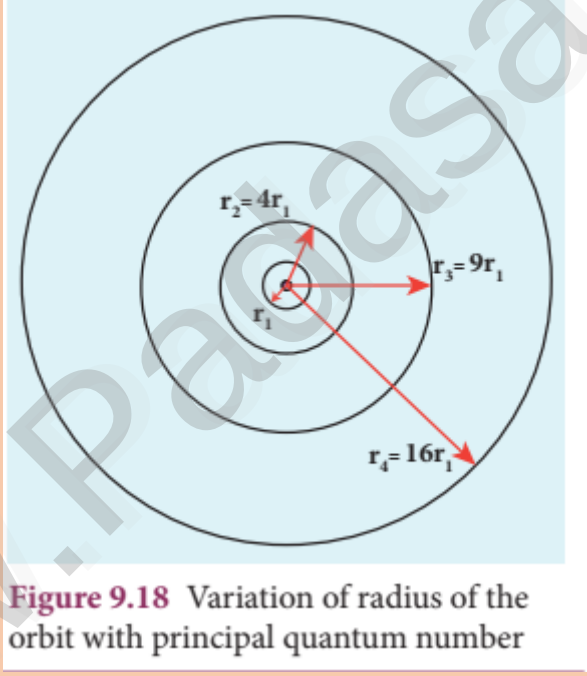


Figure 9.18 Variation of radius of the orbit with principal quantum number

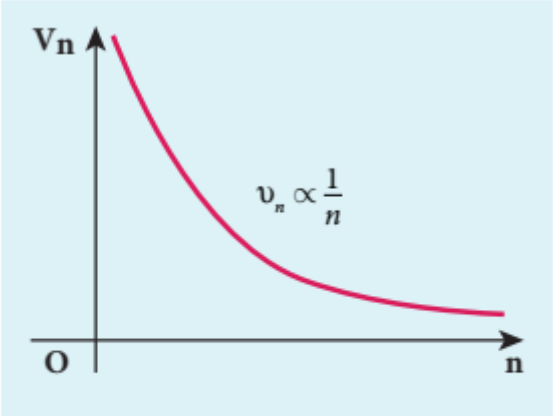


Figure 9.19 Variation of velocity of the electron in the orbit with principal quantum number

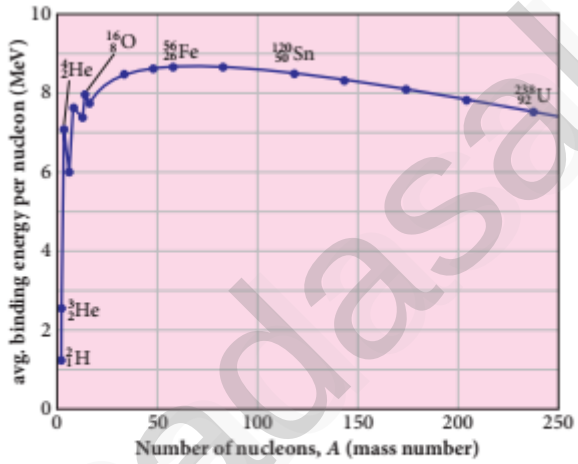


Figure 9.24 Avg. binding energy of the nucleons

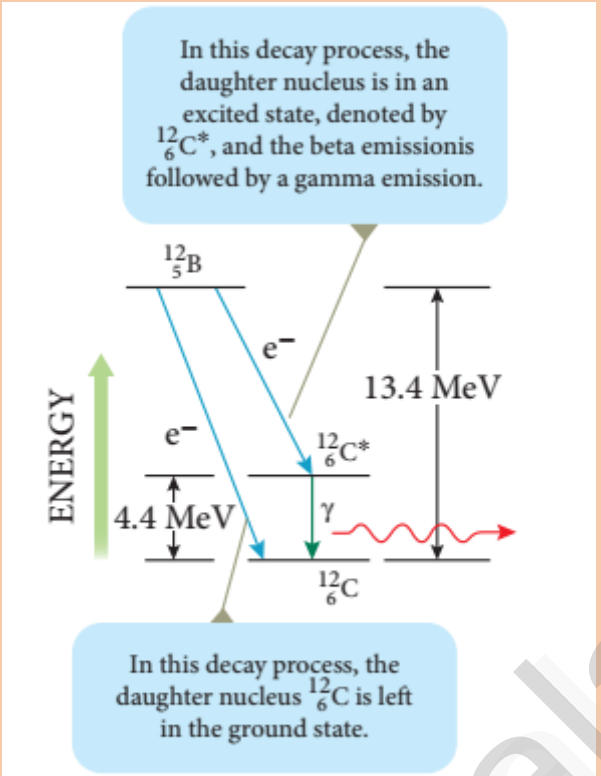


Figure 9.25 Gamma emission

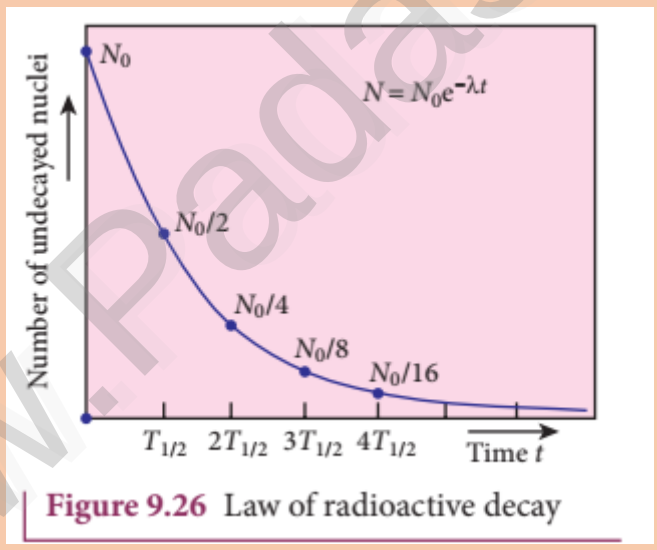


Figure 9.26 Law of radioactive decay

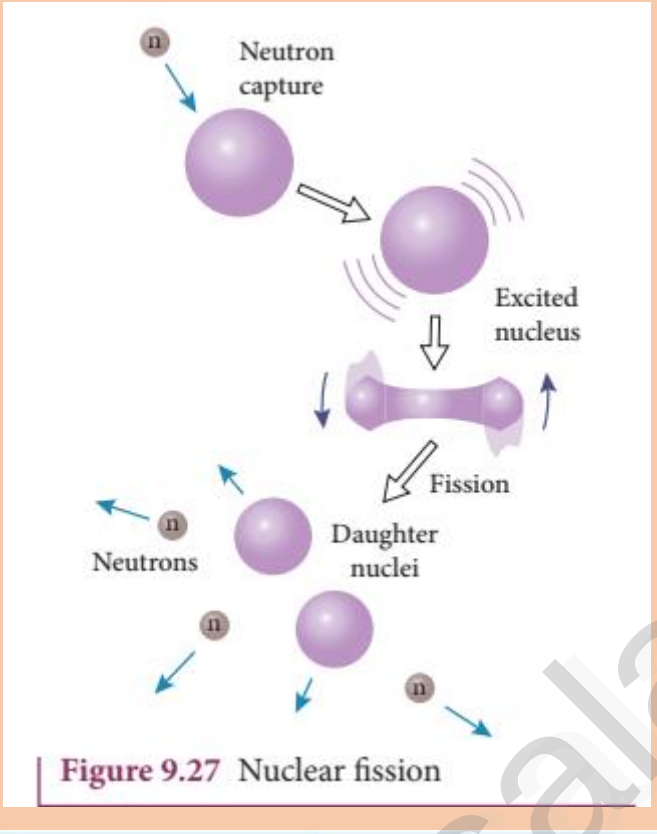


Figure 9.27 Nuclear fission

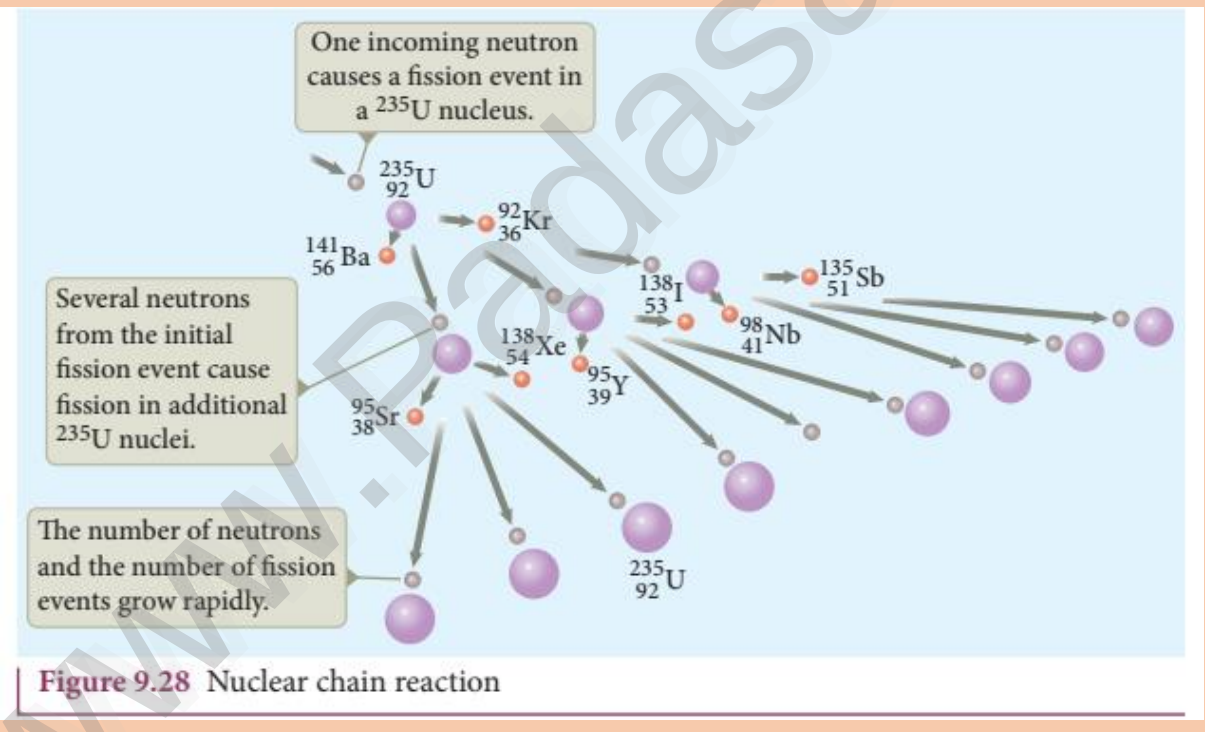


Figure 9.28 Nuclear chain reaction

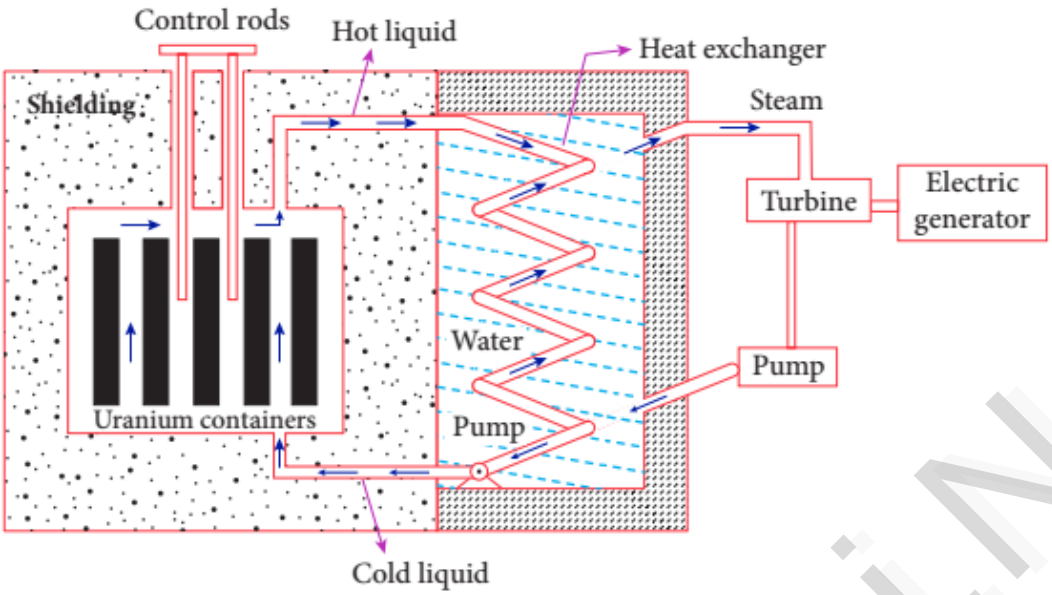


Figure 9.29 (a) Block diagram of Nuclear reactor

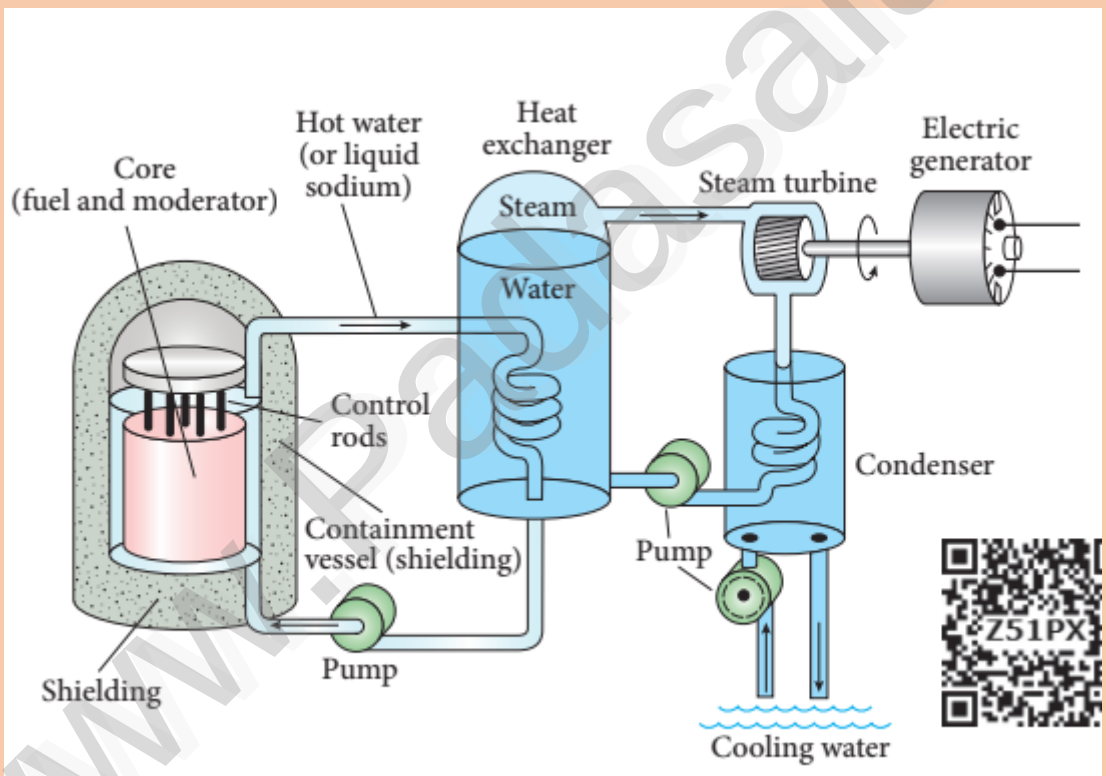


Figure 9.29 (b) Schematic diagram of nuclear reactor

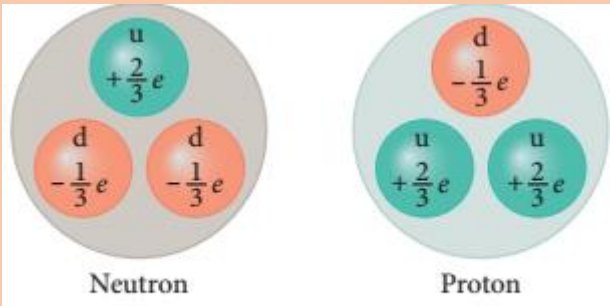


Figure 9.30 Constituents of nucleons

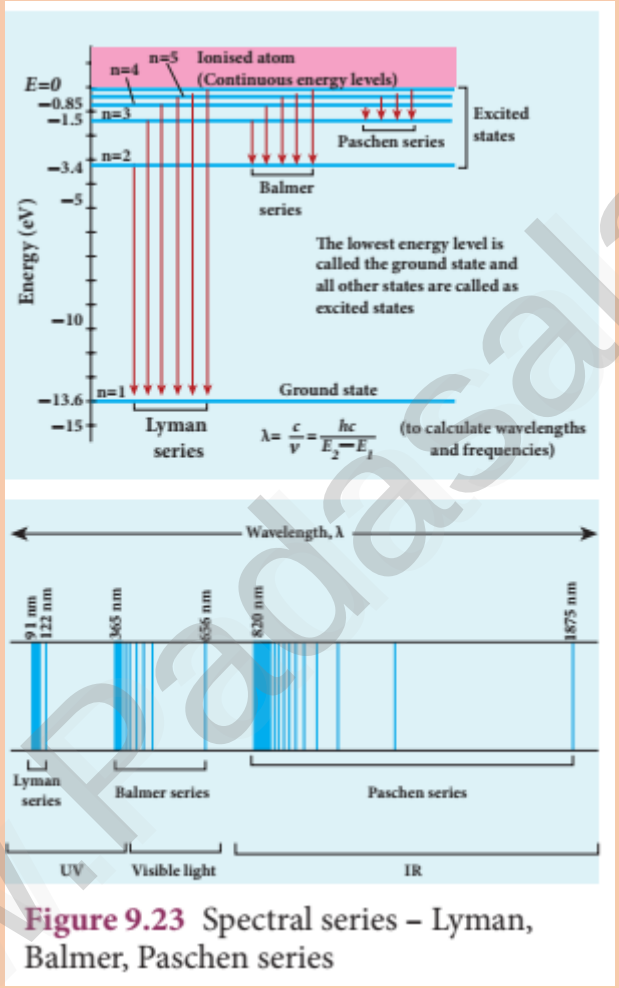


Figure 9.23 Spectral series – Lyman, Balmer, Paschen series

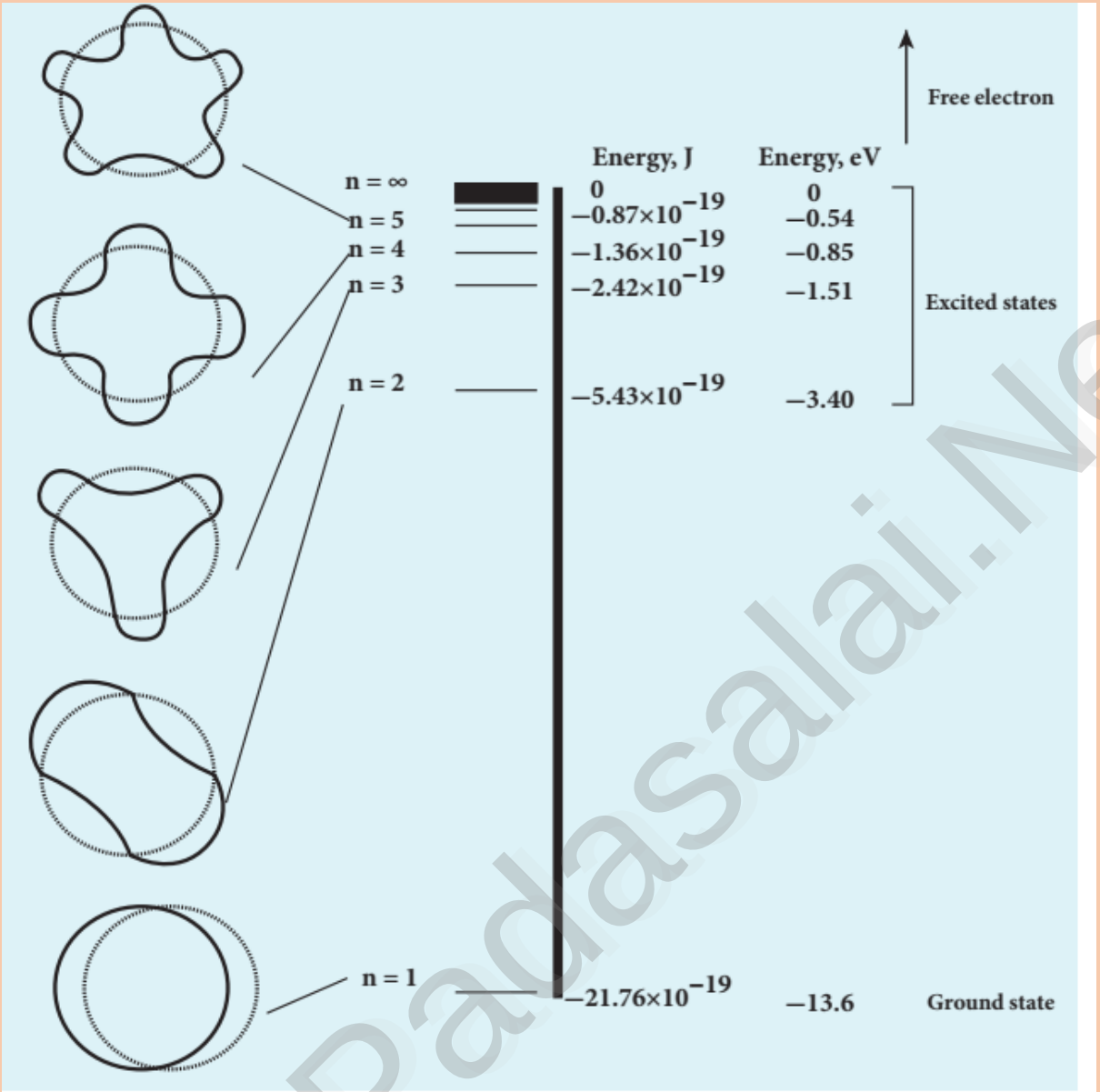


Figure 9.20 Energy levels of a hydrogen atom

SIR CV RAMAN COACHING CENTRE –IDAPPADI,SALEM

XLL PHYSICS UNIT – 9 –IMPORTANT DIAGRAMS

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