Branch IT. IT

Subject Applied Physics-II

Teacher: Pritam Singh Dogra

Session : 27th January 2024- 25May2024

Class Room:

Proposed Lesson Plan:

Period:27/01/24 to 25/05/24				Total Lectures Planned: 57		
Sr. No.	Week	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	5th Jan.	2	Wave motion and its applications	Introduction of Applied Physics-II	R1, R2, R3 and R4	
				Wave motion, transverse and longitudinal waves with examples		
	1st Feb.	2		definitions of wave velocity, frequency and wave length and their relationship, Sound and light waves and their properties		
				wave equation (y = r sin ωt) amplitude, phase, phase difference,		
	2nd Feb.	3		Principle of superposition of waves and beat formation		
				Simple Harmonic Motion (SHM): definition, expression for displacement, velocity etc.		
				Definition, expression for acceleration, time period, frequency etc.		
				Free, forced and resonant vibrations and their examples.		
	3rd Feb.	3		Acoustics of buildings – reverberation, reverberation time, echo, noise		
				coefficient of absorption of sound, methods to control reverberation time and their applications.		
				Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic		
				Revision of whole Chapter		
2	4th feb.	4	Optics	Basic optical laws- reflection and refraction, refractive index Images and image formation by mirrors, lens and thin lenses, lens formula	R1, R2, R3 and R4	
				Power of lens, magnification, Total internal reflection, Critical angle and conditions for total internal reflection		
				Applications of total internal reflection in optical fiber		
				Optical Instruments- simple microscope		
	5th Feb.	2		Optical Instruments- compound microscope		
				astronomical telescope in normal adjustment and their magnifying powers		
	1st Mar.	2		Revision of whole Chapter		
3	2nd Mar.	3	Electrostatics	Coulomb's law, unit of charge	R1, R2, R3 and R4	
				Electric field, Electric lines of force and their properties		
				Electric flux, Electric potential and potential difference, Gauss's law		
				Capacitor and its working, Capacitance and its units, Capacitance of a parallel plate capacitor		
	3rd Mar.	4		Class Test-I		
				Series and parallel combination of capacitors (related numerical), dielectric and its effect on capacitance, dielectric break down		
				Revision of whole Chapter		
				Electric Current and its units, Direct and alternating current		

4	4th Mar.	4	Current Electricity	Resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances	R1, R2, R3 and R4
				Factors affecting resistance of a wire, carbon resistances and colour coding, Ohm's law and its verification, Kirchhoff's laws.	
				Concept of terminal potential difference and Electro motive force (EMF)	
	5th Mar.	3		Heating effect of current, Electric power, Electric energy and its units (related numerical problems).	
				Advantages of Electric Energy over other forms of energy.	
5	1st April	3	Electromagnetism	Types of magnetic materials: dia, para and ferromagnetic with their properties	R1, R2, R3 and R4
				Magnetic field and its units, magnetic intensity, magnetic lines of force	
				magnetic flux and units, magnetization	
				Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor	
	2nd April	2.		Moving coil galvanometer; principle, construction and working	
				Conversion of a galvanometer into ammeter and voltmeter.	
				Revision of whole Chapter	
6	3rd April	3	Semiconductor Physics	Energy bands in solids	R1, R2, R3 and R4
				Class Test-II	
	4th April	3		Types of materials (insulator, semi-conductor, conductor)	
				intrinsic and extrinsic semiconductors.	
				p-n junction, junction diode, V-I characteristics	
				Diode as rectifier – half wave and full wave rectifier (centre taped).	
	5th April	2 .		Photocells, Solar cells; working principle and engineering applications	
7	1st May	3	Modern Physics	Lasers: Energy levels ionization and excitation potentials spontaneous and stimulated emission	R1, R2, R3 and R4
	2nd May	3 .		population inversion, pumping methods, optical feedback Types of lasers; Ruby He-Ne and semiconductor, laser characteristics	
	3rd May	4		Engineering and medical applications of lasers and Fiber Optics. Introduction to optical fibers	
				House Test	
				light propagation, acceptance angle and numerical aperture fiber types, applications in; telecommunication	
	4th May	4		medical and sensors Revision of whole Chapter Revision of whole syllabus	

REFERENCE RESOURCES

- Applied -Physics-II by R.A. Banwat {R1}
- Dinesh Publication (A.P.-II) {R2}
- Modern ABC of Physics-II {R3}
- Hiteshi Publications (A.P.-II) {R4}

Signature of Teacher with Date (Chatam Singh) 5/2/24

Signature of H.O.D. with Date