Physics Orientation class

All of you are heartily welcome in physics class

Books

1. Text book of Engineering Physics
                         By T.R Lamichhane
2. Text book of Engineering Physics
                         By Krishna Adhikari
3. Fundamental of Physic
                    By Robert Rescnick and David Hallday

Reference Books:

1. Concept of physic by H.C Verma
2. Modern Engineering Physic by A.S Basudeva
3. Electronics by B.L Thereja
4. Principles of Electronics, V. K. Meheta

Lab text Book:

1. B.Sc Practical Physics
                    by C. L. Arora

Marks

Evaluation	Theory	Practical	Total		
Internal	30	20	50		
Final	50		50		
Total	**80**	**20**	**100**		

Contents

1.Mechanical Oscillation:
Introduction and equation of
Simple Harmonic Motion, energy
in Simple Harmonic Motion,
oscillation of mass –spring
system, compound pendulum

2.Wave motion

Introduction of wave, wave velocity and particle velocity, types of waves, equation, energy, power and intensity of plane progressive wave, standing wave and resonance.

3.Acoustics

Reverberation of sound, absorption coefficient, Sabine's formula, introduction, production and applications of ultrasonic wave

4.Physical Optics

Interference: introduction, coherent sources, interference in thin films due to reflected and transmitted light, Newton's Ring

Diffraction: introduction, fraunhoffer diffraction at single silt and double silt diffraction grating
  Polarization: introduction, double refraction, Nicol prism, optical activity, specific rotation, wave plates

5.Laser and Fiber Optics

Introduction of laser, spontaneous and stimulated emission, optical pumping, He-Ne laser, Ruby Laser, use of laser, Propagation of light waves, types of optical fiber, applications of optical fiber

6.Electrostatics

Electric charge, electric force, electric flux, electric potential, Gauss law and its applications, electric field intensity and electric potential due to dipole, electric potential due to quadrupole, capacitorselectrostatic potential energy, dielectrics and gauss law charging and discharging of capacitor

7.Electricity and magnetism

Electric current, resistance, resistivity and conductivity, atomic view of resistivity, magnetic field magnetic force, Lorentz force, Hall effect, Biot-Savart's law and its applications, force between two parallel conductors, Ampere's circuital law and its applications, Faraday's law of electromagnetic induction, self-induction R-L circuit, energy stored in magnetic field and magnetic energy density

8.Electromagnetism

LC oscillation, Damped oscillation, forced oscillation and resonance, Maxwell's equations displacement current, wave equations in free space, continuity equation, E and B fields, poynting vector, radiation pressure

9.Photon and matter waves

Photon, group velocity and phase velocity, De brogile wavelength, Schrodinger wave equation, one dimensional potential well, tunneling effect

10.Semiconductors and super conductivity

Introduction, types of semiconductors Dopping, P-N Junction, Metal- semiconductor junction, junction breakdown, junction capacitance, electrical conduction in metals, insulators and semiconductors according to band theory of solids, introduction to superconductor

Marks distribution

- Total marks-100
- Long quastion-6*9=54
- Numerical or short derivation-6*6=36
- Short quastion-2*5=10
- Pass marks-45
- Time-3hrs

Practical's:

1.To determine the acceleration due to gravity & radius of gyration by single bar pendulum.

2.To determine the frequency of AC mains by using sonometer apparatus

3.To determine the wave length by using diameter of Newton's ring

4.To determine the wave length of laser light by using diffraction grating

5.To determine the value of Modulus of Elasticity of the material given and Moment of Inertia of Circular disc using torsional pendulum

6.To determine the capacitance of given capacitor by charging and discharging through resistor

7.To determine the low resistance of a given wire and resistance per unit length of the wire by using Carey-foster bridge