HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

CBCS - Semester - Grading Pattern

B. Sc. :: PHYSICS :: SEMESTER-II

CC PHY-201

(In force from June 2020)

Unit -1 Electrostatics :-

Electrostatics :-

- Gauss's law (4.21), Gauss's law in Differential form (4.22), Gauss's law and Coulomb's law (4.23), Force on the Surface of a charged Conductor (4.25), Electrostatics Energy in the medium surrounding the charged conductor(4.26), Millikan's Oil Drop Method for Determination of Electronic Charge (4.29)
- Related Examples & Problem

Steady Current :-

- Current and Current density (8.6) , Conservation of charge i.e., Continuity Equation (8.8), Ohm's Law at a point (8.11), Wiedmann and franz law (8.13), The Relaxation Time (8.14)
- Related Examples & Problem

Basic Reference :-

Electricity and magnetism By K.K .Tewari (S. Chand & Company Ltd)

Other Reference :-

1. Electricity and magnetism By Mahajan and Rangwala
2. Electricity and magnetism – Berkley Physics Course Vol- II

Unit -2 Optics

Refraction Through Lenses:-

- Principal foci (2.3), Least Possible Distance Between an objet & its real image in a convex lens(2.4), Derivation Produced by a thin lens (2.5), Equivalent Focal Length of two thin lenses Separated by a finite distance (2.6) , Cardinal points of an optical system (2.8), Principal Foci and Focal Planes (2.9), Principal points and principal planes (2.10), Nodal Point (2.11), Aberrations (3.1), Spherical aberration in a lens (3.5), Chromatic aberration (3.12).
- Related Examples & Problem

Interference :-

- Interference in thin films (8.15), Interference due to reflected light (8.16), Interference due to transmitted light (8.17), Newton's Rings (8.23), Determination of the wavelength of sodium light using Newton's Rings (8.24), Refractive index of a liquid Newton's Rings (8.25)
- Related Examples & Problem

Basic Reference :-

A Textbook of OPTICS By N. Subhramanyam & Brij lal (S. Chand & Company Ltd.)

other Reference :-

1. Optics and Atomics Physics by D.P. Khandelval (Himalaya Publishing house)
2. Principal of Optics by B.K Mathur (S. Chand & Company Ltd)
3. Optics by Ajoy Ghatak (TMH Edition)

Unit- 3 Waves & Sound

Wave:-

- Theory of Resonator (6.16), Dependence of the Frequency of resonator on the size and shape of the mouth (6.17), Velocity of transverse waves along a stretched string (7.1), law's of transverse Vibration of Strings (7.3), Melde's Experiment (7.5), Kundt's Tube (7.13), Related Examples & Problem

Sounds:-

- Musical sound and noise (7.6), Speech(7.17), Human Voice (7.18), Human Ear (7.19), Characteristics of musical sound (7.20), Intensity of sound (7.21), Measurement of intensity of sound (7.22), Bel (7.23), Phon (7.24). Related Examples & Problem

Ultrasonic waves :-

- Ultrasonic (11.23), Production of ultrasonic waves (11.24), Piezo – Electric oscillator (11.24.3), Detection of ultrasonic waves (11.25), Applications of ultrasonic waves (11.27) Related Examples & Problem

Basic Reference :-

Waves And Oscillations By N. Subhramanyam & Brij lal (Vikas Publishing House Pvt. Ltd, New Delhi) – Second Revised Edition.

Other Reference :-

1. University Physics by Sears , Zeemansky and Young (Norosa Publishing House)
2. A Text Book On Oscillations , Wave and Acoustics by M. ghosh & D. Bhattacharya (S. Chand)
3. Vibration , Waves & heat by Sears and Zeemansky.

Unit -4

Thermodynamics

- Second Law of Thermodynamics (2.8) , Carnot's theorem (2.9), Thermodynamic Scale of temperature (2.10), Identity of Perfect Gas Scale and Absolute Scale (2.11), Thermodynamics of Refrigeration (4.2)
- Entropy (2.13), Change of Entropy in a reversible process (2.14), change of entropy in an irreversible process (2.15), Principle of increase of entropy of degradation of energy (2.16), Formulation of the second law in term of entropy (2.17) , Entropy and second law (2.18)
- Third law of Thermodynamics (Nernst's heat theorem) (2.19) T-S diagram of Carnot cycle
- Calculation of Entropy of perfect gas and steam. (2.21),
- Related Examples & Problem

Basic Reference :-

Thermodynemics and Statistical Physics by Dr. J.P. Agarwal and Satya Prakash (Pragati Prakashan)

Other reference ;-

1. Heat and Thermodynamics by Zeemansky
2. University Physics by Sears, Zeemankky and young (Narosa Publishing House)
3. Heat and Thermodynamics by Richard H. Dittmon & Mark W. Zemansky (TMH)
4. Heat and Thermodynamics by A.B. Gupta and H. P. Roy (New Central Book) .