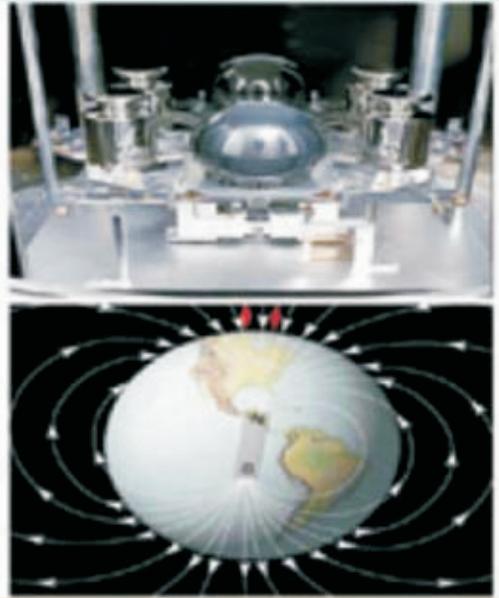


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Class XII

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Chandigarh, Haryana, Himachal, J & K, Andhra Pradesh, Goa,
Chhattisgarh, Kerala, North East and Various States & Navodaya,
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Er. Meera Goyal

B. Tech. (Gold Medalist)

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Syllabus

Physics XII

Practicals

A. Every student will perform 10 experiments (5 from each section) & 8 activities (4 from each section) during the academic year. Two demonstration experiments must be performed by the teacher with participation of students. The students will maintain a record of these demonstration experiments.

B. Evaluation Scheme for Practical Examination :

● One experiment from any one section		8 Marks
● Two activities (one from each section)	(4 + 4)	8 Marks
● Practical record (experiments & activities)		6 Marks
● Record of demonstration experiments & Viva based on these experiments		3 Marks
● Viva on experiments & activities		5 Marks
Total		30 Marks

Section A

Experiments

1. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
2. To find resistance of a given wire using metre bridge and hence determine the specific resistance of its material.
3. To verify the laws of combination (series/parallel) of resistances using a metre bridge.
4. To compare the emf of two given primary cells using potentiometer.
5. To determine the internal resistance of given primary cells using potentiometer.
6. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
7. To convert the given galvanometer (of known resistance and figure of merit) into an ammeter and voltmeter of desired range and to verify the same.
8. To find the frequency of the a.c. mains with a sonometer.

Activities

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

(ii)

Section B

Experiments

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex lens by plotting graphs between u and v or between $1/u$ and $1/v$.
3. To find the focal length of a convex mirror, using a convex lens.
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.
7. To find refractive index of a liquid by using (i) concave mirror, (ii) convex lens and plane mirror.
8. To draw the I - V characteristic curve of a p - n junction in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.
10. To study the characteristics of a common-emitter n p n or p n p transistor and to find out the values of current and voltage gains.

Activities

1. To study effect of intensity of light (by varying distance of the source) on a L.D.R.
2. To identify a diode, a LED , a transistor and IC , a resistor and a capacitor from mixed collection of such items.
3. Use of multimeter to (i) identify base of transistor. (ii) distinguish between n p n and p n p type transistors. (iii) see the unidirectional flow of current in case of a diode and a LED . (iv) check whether a given electronic component (*e.g.* diode, transistor or IC) is in working order.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two Polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the nature and size of the image formed by (i) convex lens, (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

Suggested Investigatory Projects

1. To investigate whether the energy of a simple pendulum is conserved.
2. To determine the radius of gyration about the centre of mass of a metre scale as a bar pendulum.
3. To investigate changes in the velocity of a body under the action of a constant force and determine its acceleration.
4. To compare effectiveness of different materials as insulators of heat.
5. To determine the wavelengths of laser beam by diffraction.
6. To study various factors on which the internal resistance/emf of a cell depends.
7. To construct a time-switch and study dependence of its time constant on various factors.
8. To study infrared radiations emitted by different sources using photo-transistor.
9. To compare effectiveness of different materials as absorbers of sound.
10. To design an automatic traffic signal system using suitable combination of logic gates.
11. To study luminosity of various electric lamps of different powers and make.
12. To compare the Young's modulus of elasticity of different specimens of rubber and also draw their elastic hysteresis curve.
13. To study collision of two balls in two dimensions.
14. To study frequency response of : (i) a resistor, an inductor and a capacitor, (ii) RL circuit, (iii) RC circuit, (iv) LCR series circuit.

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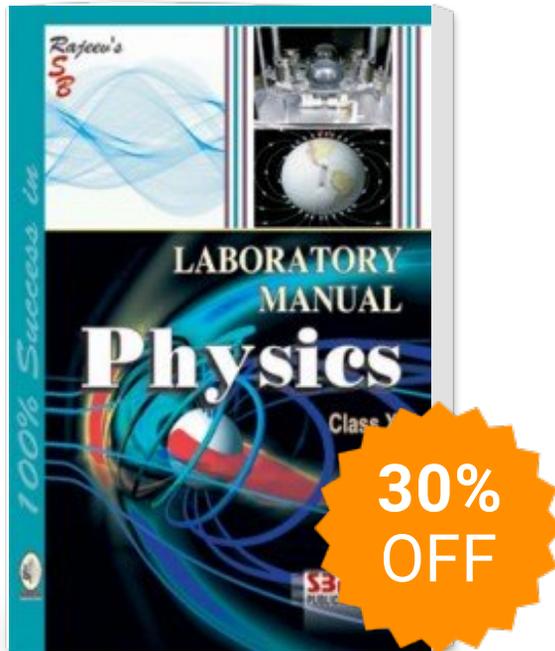
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Publisher : Sbpd Publications ISBN : 9789351679721

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