

Sarvodaya
Lab Manual
PHYSICS



XII

- Detailed explanations of each experiment.
- Think-and-Answer questions with answers.
- Diagrams for concept clarity.
- Activities on day-to-day physics and real-life examples.



Ncert Saraswati Lab Manual Physics Class 12

Er. Meera Goyal

Ncert Saraswati Lab Manual Physics Class 12:

Practical/Laboratory Manual Physics Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha

Bansal Dr. J. P. Goel, Er. Meera Goyal, 2020-06-24 SECTION A EXPERIMENTS 1 To determine resistance per cm of a given wire by plotting a graph for potential difference versus current 2 To find resistance of a given wire using meter bridge and hence determine the specific resistance Resistivity of its material 3 To verify the laws of combination Series Parallel of resistance using a meter bridge 4 To compare the e.m.f. of two given primary cells using potentiometer 5 To determine the internal resistance of a given primary cell e.g. Leclanche cell using potentiometer 6 To determine the resistance of a galvanometer by half deflection method and to find its figure of merit 7 A To convert a given galvanometer of known resistance and figure of merit into an ammeter of desired range and to verify the same 7 B To convert a given galvanometer of known resistance and figure of merit into a voltmeter of desired range and to verify the same 8 To find the frequency of AC mains with a sonometer and horse shoe magnet 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 graph between u and v or $1/u$ 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 the angle of minimum deviation for a given prism by plotting a graph between the angle of incidence and angle of deviation 6 To determine refractive index of a glass slab using a travelling microscope 7 To find the refractive index of a liquid by using a convex lens and a plane mirror 8 To draw I V characteristics curve of a p n function in forward bias and reverse bias 9 To draw the characteristics 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 SECTION A 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 given circuit using multimeter 3 To assemble a household circuit comprising of 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 atleast a battery resistor rheostat key ammeter and voltmeter Make the components that are not connected in proper order and correct the circuit and also the circuit diagram SECTION B ACTIVITIES 1 To study effect of intensity of light by varying distance of the source on an LDR Light Depending Resistor 2 To identify a diode a LED a transistor an IC a resistor and a capacitor from mixed collection of such items 3 Use a multimeter to i identify the transistor ii distinguish between n p n and p n p type transistor iii see the unidirectional flow of current in case of a diode and a LED iv Check whether a given electronic components 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 polarisation 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 candle and a screen for different distance 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 PROJECT 1 To Study Various factors on which the Internal Resistance EMF of a cell depends
2 To study the variations in current following in a circuit containing L D R because of variation a In the power of
incomdescent lamp used to illuminate the L D R Keeping all the lamps in fixed position b In the Distance of a in condescent
lamp of fixed power used to illuminate the L D R 3 To find the refractive indeces of a Water b Oil Transparent using a plane
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Input voltage ii Number of turms in secondary coils and primary coils of a self designed transformer 6 To Investigate the
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Tables

Lab Manual-Physics-TB-12_E-R Dr R K Gupta, Lab Manual Physics TB 12_E R **CBSE Laboratory Manual**

Physics Class 12th Er. Akash Shukla,2022-12-13 Once Owen Chamberlain said The development of Physics like the
development of any science is a continuous one It is a constant effort of NCERT that it puts on its textbooks to promote
clearer understanding of concepts in every student As important as theoretical study is practical study is also essential to
prove theories into realities The freshly updated edition of LABORATORY MANUAL Physics for class XII has been designed
as a complete package to understand all the relevant Physics experiments in a simple lucid and interactive manner Strictly
based on CBSE guidelines each experiment includes theory to give deep insights into each concept formula term definition
etc Viva Voce questions Precautions Activities Diagrams and Appendices are accumulated to make concepts clearer in
accordance with the curriculum Along with the experiments suggested Investigatory Projects will reveal the complete
adherence of CBSE curriculum This book serves as a step by step guide for conducting experiments in such a way that
students will not need to refer to any other book for explanations of the concepts An all inclusive guidance book for Physics
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the experiment Suggested Investigatory Projects of the CBSE curriculum Clearly labeled Diagrams in each experiment
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Practical/Laboratory Manual Physics Class - XII -by Er. Meera Goyal (SBPD Publications) Er. Meera Goyal, 2021-07-03 In accordance to the new syllabus of Central Board of Secondary Education CBSE New Delhi and other State Boards following CBSE Curriculum [LK-Science-HB-09-R](#) R Rangarajan, Neena Sinha, Rajesh Kumar, LK Science HB 09 R [Physics : Textbook For Class Xii](#), 2006-01-01

Practical/Laboratory Manual Physics Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal Dr. J. P. Goel ,Er. Meera Goyal ,2020-06-23

SECTION A EXPERIMENTS

- 1 To determine resistance per cm of a given wire by plotting a graph for potential difference versus current
- 2 To find resistance of a given wire using meter bridge and hence determine the specific resistance Resistivity of its material
- 3 To verify the laws of combination Series Parallel of resistance using a meter bridge
- 4 To compare the e.m.f of two given primary cells using potentiometer
- 5 To determine the internal resistance of a given primary cell e.g Leclanche cell using potentiometer
- 6 To determine the resistance of a galvanometer by half deflection method and to find its figure of merit
- 7 A To convert a given galvanometer of known resistance and figure of merit into an ammeter of desired range and to verify the same
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- 8 To find the frequency of AC mains with a sonometer and horse shoe magnet

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
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- 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 the angle of minimum deviation for a given prism by plotting a graph between the angle of incidence and angle of deviation
- 6 To determine refractive index of a glass slab using a travelling microscope
- 7 To find the refractive index of a liquid by using a convex lens and a plane mirror
- 8 To draw I V characteristics curve of a p-n junction in forward bias and reverse bias
- 9 To draw the characteristics curve of a zener diode and to determine its reverse breakdown 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

SECTION A 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 given circuit using multimeter
- 3 To assemble a household circuit comprising of 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 atleast a battery resistor rheostat key ammeter and voltmeter Make the components that are not connected in proper order and correct the circuit and also the circuit diagram

SECTION B ACTIVITIES

- 1 To study effect of intensity of light by varying distance of the source on an LDR Light Dependent Resistor
- 2 To identify a diode a LED a transistor an IC a resistor and a capacitor from mixed collection of such items
- 3 Use a multimeter to i identify the transistor ii distinguish between n-p-n and p-n-p type transistor iii see the unidirectional flow of current in case of a diode and a LED iv Check whether a given electronic components 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 polarisation 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 candle and a screen for different distance of the candle from the lens mirror
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combination with the specified focal length by using two lenses from the given set of lenses SUGGESTED INVESTIGATORY PROJECT 1 To Study Various factors on which the Internal Resistance EMF of a cell depends 2 To study the variations in current following in a circuit containing L D R because of variation a In the power of incandescent lamp used to illuminate the L D R Keeping all the lamps in fixed position b In the Distance of a incandescent lamp of fixed power used to illuminate the L D R 3 To find the refractive indices of a Water b Oil Transparent using a plane mirror an equiconvex lens made from a glass of known refractive index and an adjustable object needle 4 To design an appropriate logic gate combination for a given truth table 5 To investigate the relation between the ratio of i Output and Input voltage ii Number of turns in secondary coils and primary coils of a self designed transformer 6 To Investigate the dependence of angle of deviation on the angle of incidence using a hollow prism filled one by with different transparent fluids 7 To Estimate the charge induced on each one of the two identical styrofoam balls suspended in a vertical plane by making use of coulomb's Law 8 To study the factors on which the self inductance of a coil depends by observing the effect of this coil when put in series with a resistor bulb in a circuit fed up by an a c source of adjustable frequency 9 To study the earth's magnetic field using a tangent galvanometer

APPENDIX Some Important Tables of Physical Constants Logarithmic and other Tables **Physics Lab Manual** Neena Sinha, R Rangarajan, R P Manchanda, R K Gupta, Rajesh Kumar, Lab Manual **Physics Grade 12 Student Lab Manual**

3rd Edition 259077, BJU Press, 2010-03-01 **Practical/Laboratory Manual Physics Class - 12** Er. Meera Goyal, 2023-04-30

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Manual Physics-TB-09 Dr M K Gandhi, ICSE Lab Manual Physics TB 09 **Physics 12 Laboratory Manual** WVU, Physics Staff, Wvu Physics, 1992-06-01 **NCERT Exemplar Problems-Solutions Physics Class 12th** Sanjeev Kumar, 2022-11-26

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