



**DELHI PUBLIC SCHOOL, (JOKA) SOUTH KOLKATA**

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**Syllabus  
Session:2021-22**

**Class- XII**

**Subject- Physics**

WEEKLY TEST 1	<b><u>Electrostatics</u></b> 1. Electric charges and fields 2. Electrostatic potential and capacitances <b><u>Current electricity</u></b> 3. Current electricity <b><u>Magnetic Effects of Current and Magnetism</u></b> 4. Moving Charges and Magnetism
WEEKLY TEST 2	5. Magnetism and Matter <b><u>Electromagnetic Induction and Alternating Currents</u></b> 6. Electromagnetic Induction 7. Alternating Current
MID TERM	<b><u>Electromagnetic Waves</u></b> 8. Electromagnetic Waves <b><u>Dual Nature of Radiation and Matter</u></b> 9. Dual Nature of Radiation and Matter <b><u>Atoms and Nuclei</u></b> 10. Atoms 11. Nuclei <b><i>Along with the chapters of WT 1 &amp; WT 2.</i></b>
PRACTICE EXAMINATION 1	<b><u>Optics</u></b> 12. Ray Optics and Optical Instruments 13. Wave Optics <b><u>Electronic Devices</u></b> 14. Semiconductor Electronics: Materials, Devices and Simple Circuits <b><u>Along With the chapters of WT1+WT2+Mid-Term</u></b>

## **SECTION-A**

### **Experiments**

1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.
2. To find resistance of a given wire / standard resistor using metre bridge.
3. To verify the laws of combination (series) of resistances using a metre bridge.

OR

To verify the laws of combination (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 cell 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 a voltmeter of desired range and to verify the same.

OR

To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.

### **Activities**

1. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
2. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
3. To assemble the components of a given electrical circuit.
4. To study the variation in potential drop with length of a wire for a steady current.

## **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 mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between  $u$  and  $v$  or between  $1/u$  and  $1/v$ .
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 convex lens and plane mirror.
8. To draw the I-V characteristic curve for a p-n junction diode in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse breaks down voltage.

### **Activities**

1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
2. Use of multimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.

### **Suggested Investigatory Projects**

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing an LDR because of a variation in
  - (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).
  - (b) the distance of a incandescent lamp (of fixed power) used to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equi convex 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 and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
6. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
7. To estimate the charge induced on each one of the two identical styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
8. To study the factor 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

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