

## *Sharjah Indian School, Sharjah*

### *Experiments, Activities and projects for the Academic year 2016 – 17*

**Class XII**

**Subject: Physics**

#### *Experiments:*

1. **Ohm's Law-** To determine the resistance per cm of a given wire by plotting a graph of potential difference versus current.
2. **Meter Bridge – I** – To determine the resistance of the given wire and hence determine the specific resistance of its material.
3. **Metre-Bridge II** – To verify the laws of combination in series of resistances using a metre bridge.
4. **Metre-Bridge III** – To verify the laws of combination in parallel of resistances using a metre bridge.
5. **Potentiometer – I** - To compare the emf's of two given primary cells using potentiometer
6. **Potentiometer – II** – To determine the internal resistance of given primary cell using potentiometer.
7. **Galvanometer I** – To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
8. **Galvanometer II** - To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same.
9. **Concave mirror:-** To find the value of  $v$  for different values of  $u$  in case of a concave mirror and find the focal length.
10. **Convex Lens:-** To find the focal length of a convex lens by plotting a graph between  $u$  and  $v$  or between  $1/u$  and  $1/v$ .
11. **Concave lens:-** To find the focal length of a concave lens using a convex lens.
12. **R.I of liquid:-** To determine the refractive index of water using a concave mirror.
13. **Glass Slab:-** To determine the refractive index of a glass slab using a travelling microscope.
14. **P.N. Diode:-** To draw I-V characteristic curve of a p-n junction in forward bias.
15. **Zener Diode:-** To draw the I-V characteristics of a Zener Diode and to determine the reverse breakdown voltage.

### *Activities (For demonstration only)*

1. To identify a diode, a transistor, an IC, a resistor and a capacitor from a mixed collection of such items.
2. To observe polarization of light using two polaroids.
3. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.
4. To study the variation of potential difference with length of a wire for a steady current.
5. To draw the diagram of a given open circuit comprising at least a cell or 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.

### *Investigatory projects*

1. To study various factors influencing the resistance of a conductor.
2. To study the factors influencing internal resistance of a cell.
3. To study logic gates.