**WORKING FORMULAE AND OTHER IMPORTANT INFORMATION FOR PHYSICS PRACTICAL**

* **POINTS TO REMEMBER AND UTILISE. NOT TO BE WRITTEN IN SHEET.**

1. **OHM’S LAW**

Resistance of wire from graph, R = ∆V/∆I = 1/ Slope , where ∆V is change in potential drop across the wire and ∆I is change in current flowing in the circuit.

Resistance per unit length = R/L, where L is the length of the wire.

* Calculate and use value of R from graph only

1. Meter bridge

By Wheatstone bridge condition,

Resistance of wire, X = Q , where l is balancing length , Q is the known resistance from resistance box.

Resistivity of wire, ρ = X , where d is diameter of wire and L is length of wire.

* Keep balancing point between 30 and 70 cm.
* Calculate value of resistances to only one point of decimal after rounding off

1. Series combination in meter bridge

By Wheatstone bridge condition,

Resistance of wire, X = Q , where l is balancing length , Q is the known resistance from resistance box.

Net resistance in series combination, R = R1+R2 , where R1 is resistance of one wire and R2 is resistance of second wire.

* Keep balancing point between 30.0 and 70.0 cm.
* Calculate value of resistances to only one point of decimal after rounding off

1. To determine the resistance of a galvanometer

Resistance of a galvanometer, G = RS/ (R-S) , where R is high resistance ( from high resistance box) and S is shunt ( from low resistance box).

Figure of merit, k= EѲ /(R+G) , E of cell and Ѳ is full deflection.

Current for full deflection in the galvanometer = Nk , N is full scale division in galvanometer.

* Value of shunt always remains constant for changing values of R, as it is in parallel with galvanometer and its resistance is constant.

1. Focal length of convex lens

=- , where U is object distance, V is image distance and F is focal length of convex lens.

From the u vs v graph, F1 = OA/2 and F2 = OB/2, where OA and OB are intercepts on X and y axis of the projection from the graph respectively.

* U vs V graph is plotted on 2nd quadrant, with same scale and starting point. You may use breaks in graph.

1. Focal length of concave mirror

=+ , where U is object distance, V is image distance and F is focal length of concave mirror.

* Focal length to be found by calculation only.

1. Focal length of convex mirror

Focal length of convex mirror, f = R/2 , where R is radius of curvature of convex mirror.

1. Angle of minimum deviation for a glass prism

No Working Formula

* Draw 3 diagram on one sheet. Write angle of incidence, angle of deviation on the figure . Show direction of ray and encircle the pin points.

1. P-n junction diode

No working formula.

* Forward characteristics is in 1st quadrant and reverse characteristics is in 3rd quadrant.
* For forward characteristics, out of total 10 readings, about 3-4 reading of current should be above 1mA, i.e. after changing switch to 50 mA.

GENERAL POINTS TO REMEMBER:

* Use scale and pencil to draw circuit and ray diagrams. Get them checked immediately.
* Remember to show direction of current in circuit diagrams and direction of ray of light in ray diagrams.
* Always write units in observation table and in calculations and result.
* In graph, always write scale and physical quantities represented by the axes.