Girls' High School & College, Prayagraj

Physics Practical
Session 2020-2021
Class - X A B C D E F
Subject-Physics

Instructions: -

1. Parents are expected to ensure that the student writes all experiments in Guided Physics Practical Work-Book (D N Publications or Nova Publications).
2. Observation and reading will be done, when the school re-opens.
3. Each experiment should start from a new page.
4. Well labelled diagrams to be drawn on the left page only.

EXPERIMENT NO. 9

AIM:- To determine the focal length of the given concave mirror.

APPARATUS REQUIRED:- A concave mirror, a metre scale, a pin, a pin holder and a mirror holder.

THEORY:- When the object is placed at the centre of curvature in front of concave mirror, its image is formed at the same place and of the same size. In this position (sharpest image position), the distance between the position the object and the mirror will be equal to the radius of curvature (R) and half of radius of curvature will be the focal length of concave mirror.

FORMULA USED:- $F = R/2$

OBSERVATION AND CALCULATION :-

Least count of the metre scale = ...cm.

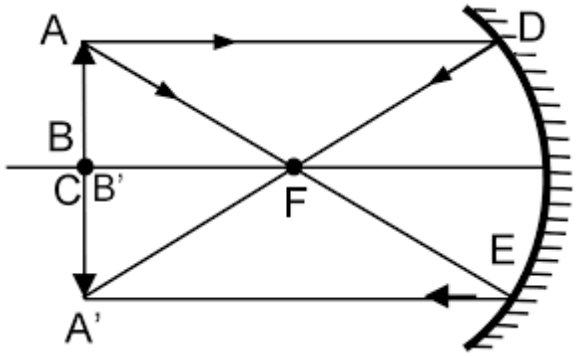
Sl.No.	Position of pin X (in cm)	Position of mirror Y(in cm)	Radius of curvature R = Y - X (in cm)	Focal length F = R/2 (in cm)
1				
2				
3				
4				

Average Focal Length = Sum of focal length /4

= (....+....+....+....)/4 cm.

=.....cm.

RESULT:- The focal length of the given concave mirror as obtained from the above experiment is ..... cm.



EXPERIMENT NO. 10

AIM:- To determine the focal length of given convex lens by measuring u and v.

APPARATUS REQUIRED:- A convex lens, a lens holder, two needles, two needle holders and a metre ruler.

FORMULA USED:- If **u** be the the distance of a object from the lens and **v** be the distance of image from the lens, then the focal length of the convex lens is

$$1/f = 1/v - 1/u$$

In case of convex lens u is negative and v is positive.

$$1/f = 1/v - 1/-u = 1/v + 1/u$$

$$f = uv/ u+v$$

OBSERVATION AND CALCULATION:-

Least count of the metre scale = ...cm.

S. No.	Position of lens (L)	Position of object X (in cm)	Position of image Y (in cm)	u = L- X (in cm)	v = Y - L (in cm)	f = uv/ v+u (in cm)
1.						
2.						
3.						
4.						

Average focal length = Sum of focal lengths/ No. of readings

= (....+....+....+....)/4 cm.

= .....cm.

RESULT:- The focal length of the given convex lens as obtained from the above experiment is ..... cm.

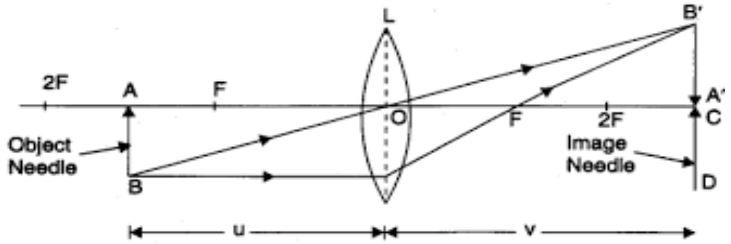


Fig. Focal length of convex lens.

EXPERIMENT NO.11

AIM: - To verify ohm's law using simple electric circuit.

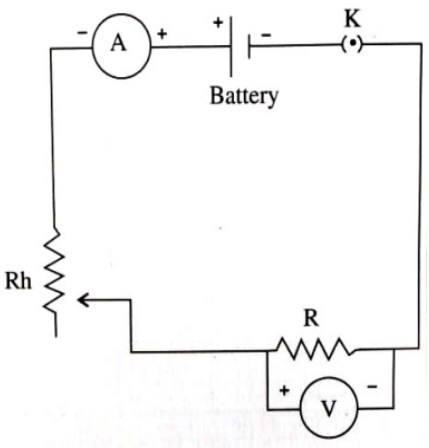
APPARATUS REQUIRED: - Coiled resistor of 2 ohm, ammeter 0 – 3.0 A, voltmeter 0 - 3.0 V, rheostat, key, battery 2.0V and connecting wires.

OHM'S LAW: - According to Ohm's law, the current flowing in a conductor is directly proportional to the potential difference applied across its ends provided that the physical conditions and the temperature of the conductor remain constant.

OBSERVATIONS:-
Least count of the ammeter =…… A
Least count of the voltmeter =…… V

S. No.	Ammeter Reading I (in amp.)	Voltmeter Reading V (in volts)
1.		
2.		
3.		
4.		

RESULT: - Since V – I graph is a straight line which verifies Ohm's law.



EXPERIMENT NO.12

AIM: - To determine the value of unknown resistance using Ohm's law.

APPARATUS REQUIRED:- Coiled resistor of 2 ohm, ammeter 0 – 3.0 A, voltmeter 0 - 3.0 V, rheostat, key, battery 2.0V and connecting wires.

OHM'S LAW: - According to Ohm's law, the current flowing in a conductor is directly proportional to the potential difference applied across its ends provided that the physical conditions and the temperature of the conductor remain constant.

OBSERVATIONS:-
Least count of the ammeter =…… A
Least count of the voltmeter =…… V

S. No.	Ammeter Reading I (in amp.)	Voltmeter Reading V (in volts)	Resistance R= V/I (in ohm)
1.			
2.			
3.			
4			

Mean resistance R = $\frac{\text{……+……+……+……}}{4}$

= …… ohm

From graph –

V_1=…….V V_2=…….V

I_1=…….A I_2=…….A

Slope of V-I graph R= $\frac{v2-v1}{I2-I1}$

= ……

=……ohm

RESULT: - The value of resistance from the graph, R=……..ohm.