PHYSICS EXPERIMENTS TO BE WRITTEN IN PRACTICAL NOTEBOOK (NOVA ICSE PHYSICS LAB MANUAL-10)

Instructions to be followed for all the 10 experiments

1. On the ruled line pages – Write the experiment number (as given in the list of experiments to be performed for session 2020-21); Aim of experiment, Apparatus, Theory, Procedure, Precautions (as can be seen in sample of practical file made by a student attached).
2. On the blank pages – Write the aim and apparatus (at the top with the pencil). Draw the diagram related to experiment using pencil, ruler, protactor (as per requirement)
3. New experiment is to be started from a new page. Make sure that when you are starting a new experiment both ruled lines side and blank side is empty
4. Students are required to write with Blue Pen only on ruled line side. However, they can use Black Pen to write down the headings while on blank side only pencil is to be used.
5. For reference a sample practical file made by a student is being attached with.

Tender Heart School, Sec. 33B, Chd.

Physics Project

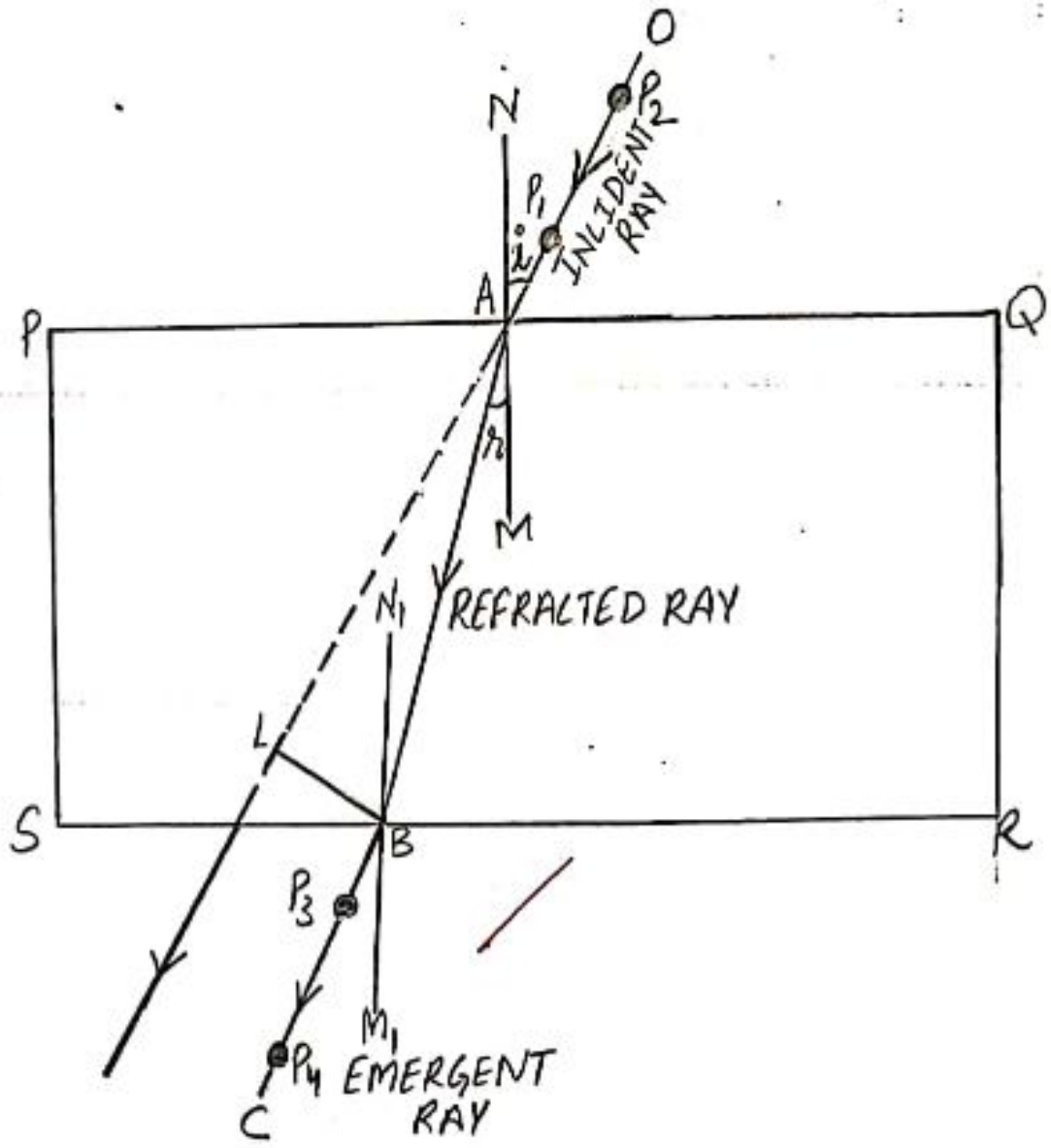
Class –X (2021-22)

1. To find lateral displacement in case of a rectangular glass slab and find its refractive index.
2. To study the variation of angle of deviation through a prism with angle of incidence.
3. To study the deviation produced by right angled prism.
4. To determine the mass of metre rule by using principle of moments.
5. To determine the focal length of a convex lens.
6. To study the dependence of potential difference and current and determine the resistance.
7. To set up a model of household wiring system including using main circuit.
8. To determine the heat capacity of a material of a given calorimeter.
9. To determine the specific heat of a metal by the method of mixtures.
10. To burn a piece of paper using a convex lens.

Experiment : 1

AIM - To find lateral displacement in case of a rectangular glass slab and find its refractive index.

APPARATUS - Drawing board, sheet of paper, board pins, rectangular glass slab.



REFRACTION THROUGH A GLASS SLAB

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Experiment : 1

AIM –

To find lateral displacement in case of a rectangular glass slab and find its refractive index.

APPARATUS –

Drawing board, sheet of paper, pins, board pins, rectangular glass slab.

THEORY –

Consider a glass slab PQRS. A ray of light OA is incident at an angle of incidence i with the normal NAM at the point of incidence A. This ray is refracted along AB and is bent towards the normal because it is going from air to glass. The refracted ray again suffers a refraction at the surface SR and is bent away from the normal N,BM, and emerges along BC which is thus an emergent ray. The emergent ray is parallel to the incident ray produced, forward and the emergent ray, i.e., distance BL gives us the lateral displacement. The various rays and angles are as shown:

$\angle NAO = i$ = angle of incidence
$\angle MAB = r$ = angle of refraction
BL = lateral displacement

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S.No	ANGLE OF INCIDENCE	ANGLE OF REFRACTION	Sin Li	Sin Lr	$_aH_g = \frac{\sin Li}{\sin Lr}$
1.	30°	19	0.5	0.33	1.5
2.	45°	28°	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{2}}{3}$	1.5

OBSERVATION TABLE

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PROCEDURE –

(i) Fix a sheet of white paper on the drawing board with the help of drawing pins at the four corners of the sheet.

(ii) Place a glass slab at the centre of the paper and mark its boundary PQRS with a fine pencil.

(iii) Remove the glass slab. Draw any line AO making an angle of 30° with the normal at the point A, the middle point of PQ approximately.

(iv) Put the glass slab back in position on the boundary line. Fix two pins P_1 and P_2 vertically on the line AO at least 10 cm apart with pin P_1 close to the slab.

(v) Look for the images of these pins in the slab from the opposite side SR and fix two more pins P_3 and P_4 so that they are in line with the images of the pins P_1 and P_2 as seen through the slab and are at least 10 cm apart.

(vi) Join the pricks of P_3 and P_4 to obtain the emergent ray. Draw a normal to SR at the point B. Join AB to get the refracted ray.

(vii) Measure the angle of incidence, angle of refraction and the angle of emergence. Produce OA forward and draw a perpendicular from B on OA produced to meet it at L. Then lateral displacement = BL.

(viii) Repeat the experiment with different angles of incidence say 45° and 60°.

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RESULT

REFRACTIVE INDEX

$$a\mu_g = 1.5$$

$$\angle i = \angle e$$

∴ EMERGENT RAY IS PARALLEL TO INCIDENT RAY

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PRECAUTIONS —

(i) All the pins must be in fixed in vertical position.
(ii) The pins must be at least 10 cm apart.
(iii) Arrow heads should be marked to show the direction of light.
(iv) The pins P_3 and P_4 must be exactly in line with the images of the pins P_1 and P_2.

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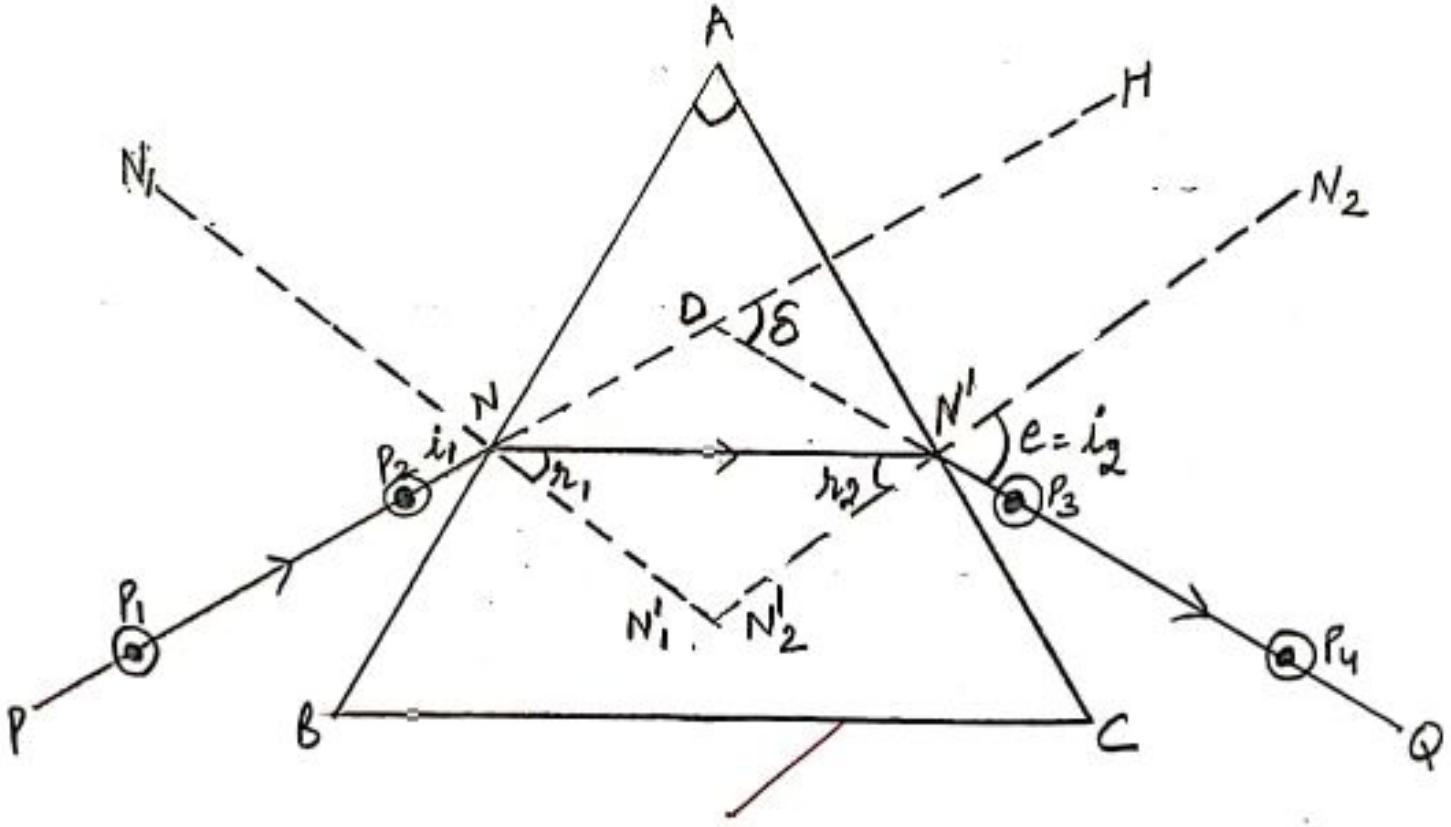
Experiment : 2

AIM – To study the variation of angle of deviation through a prism with angle of incidence.

APPARATUS – Drawing board, pins, sheet of paper, board pins and a triangular equilateral prism.



GLASS PRISM

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Experiment - 2

AIM -

To study the variation of angle of deviation through a prism with angle of incidence.

APPARATUS -

Drawing board, pins, sheet of paper, board pins, and a triangular equilateral prism.

THEORY -

A ray of light after refraction at the two faces of the prism is deviated. A ray of light incident at an angle i_1 on the the face AB of the prism is refracted along NN'. It is incident at an angle i_2 on the face AC of the prism. It suffers refraction on the face AC and emerges along N'Q. N'Q is thus the emergent ray and $i_2 = e$ in the figure is called the angle of emergence. The angle between the incident and the emergent ray is called the angle of deviation. The value of the angles of deviation depends on:

(i) the angle of incidence, i
(ii) the material of the prism
(iii) the colour or wavelength of the light
(iv) the angle of the prism, A

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S.No	ANGLE OF INCIDENCE	ANGLE OF REFRACTION	ANGLE OF DEVIATION
1.	30°	19.5°	47°
2.	70°	38.5°	43°

OBSERVATION TABLE

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For a certain angle of incidence, the angle of deviation, δ is minimum. This position is called the position of minimum deviation of the prism with respect to the incident ray.

For a triangular prism, angle of incidence, i_2 + angle of emergence, i_2 = angle of prism A + angle of deviation, δ i.e., $i_1 + i_2 = A + \delta$

PROCEDURE —

(i) Fix a sheet of paper on the drawing board with board pins.

(ii) Place the prism in the middle of the paper and draw its outline ABC. Measure angles of ΔABC i.e., angle A, B and C and take their mean. This angle is A, the angle of prism.

(iii) Mark the point N on AB and draw the normal NN_1.

(iv) Draw a line NP such that $\angle N_1NP = 40°$

(v) Place the prism again in its original position ABC.

(vi) Fix two pins P_1 and P_2 around 10cm apart.

(vii) Look from the side AC and erect two more pins P_3 and P_4 such that all the four pins (i.e., P_3, P_4 and the image of P_1 and P_2) are in a straight line.

(viii) Mark the positions of the pins by clearly encircling the points.

(ix) Remove the prism.

(x) Join P_1 and P_2 and produce it to meet, AB at N.

(xi) Join P_3 and P_4 and produce it to meet the outline AC at a point N'.

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(xii) Join N and N'.

(xiii) Further, produce P_1P_2 and P_3P_4 to meet at D. This angle δ (Delta) is the angle of deviation.

(xiv) Also, measure $e = i_2 = \angle N_2N'P_3$.

(xv) Repeat the procedure for $\angle i = 50°$, $60°$ and $70°$ and measure i_2 for each.

(xvi) For each case, show that $i_1 + i_2 = A + \delta$

PRECAUTIONS

(i) The prism should not be distributed during the course of the experiment.

(ii) The pins must be positioned in a perfectly vertically position and should be around 10cm apart from each other.

(iii) The positions of pins must be marked clearly by encircling the pin pricks.

(iv) Arrow heads should be marked to show the direction of the light rays.

(v) The boundary of the prism must be drawn ✓ before starting the experiment.

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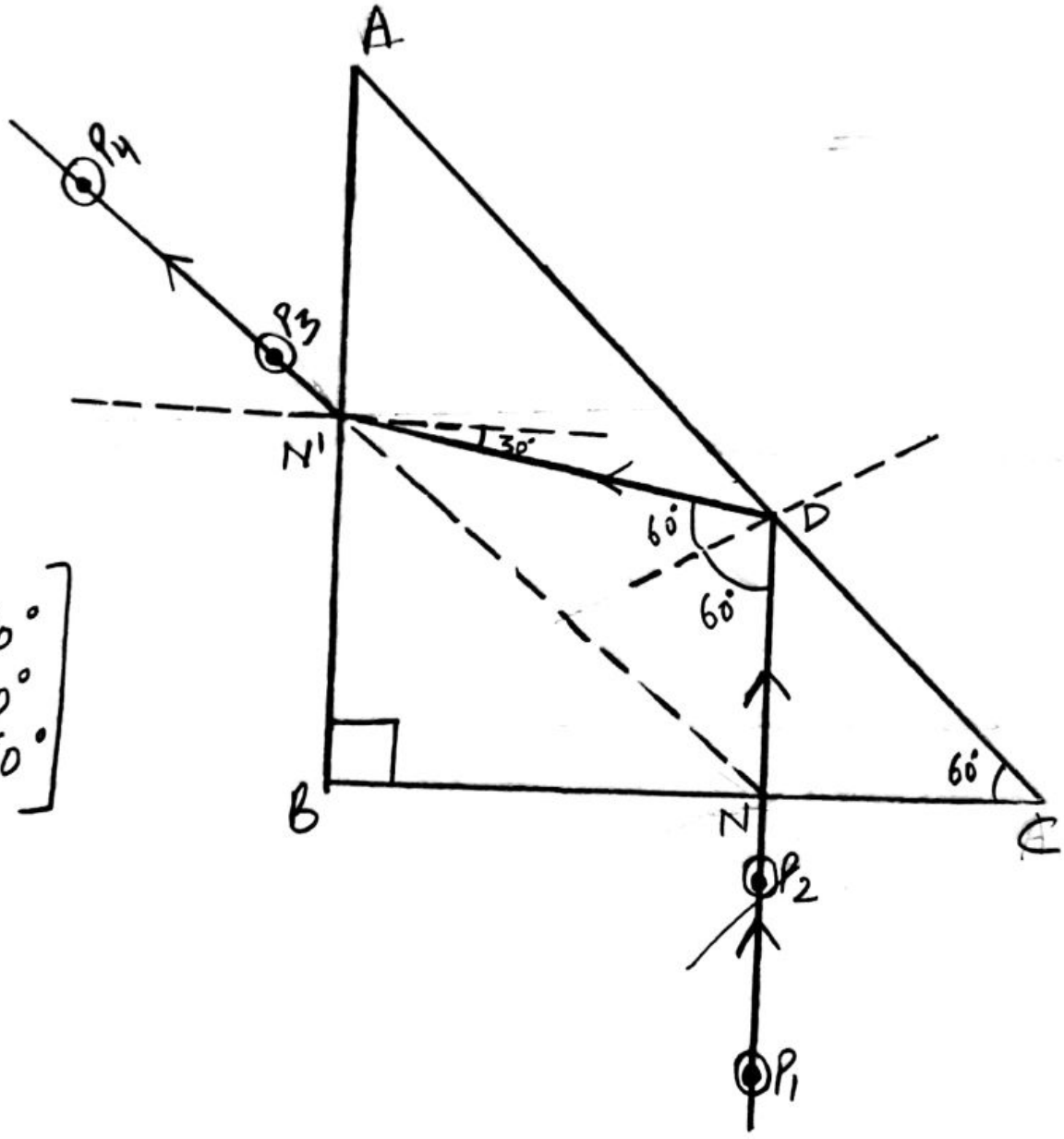
Experiment-3

AIM – To study the deviation produced by right angled prism.

APPARATUS – Glass prisms (45°, 60°, 90°), drawing board, white paper sheet, board pins and paper pins.



$$\begin{bmatrix} \angle A = 30° \\ \angle B = 90° \\ \angle C = 60° \end{bmatrix}$$

RIGHT ANGLED PRISM

Experiment - 3

AIM -

To study the deviation produced by right angled prism

APPARATUS -

Glass prisms (45°, 90°, 60°), drawing board, white paper sheets, board pins and paper pins.

THEORY -

As a ray of light encounters a boundary separating two media, it suffers refraction (i.e., bending).
A glass prism is a piece of transparent, refracting medium bounded by three intersecting plane surfaces that both disperses and deviates light. The two plane surfaces, called refracting surfaces, meet along an edge at a certain angle called the angle of prism or the refracting angle, devoted by A.
There are three such types of prisms:

(a.) Equilateral prism ($\angle A = 60°$)
(b) Right - angled isosceles prisms or parro prisms (45°, 45°, 90°)
(c) Right angled prism (30°, 60°, 90°)

When a ray of light is incident normally on prism (angle of incidence, $i = 0$), the light in each case of prisms experiences a total internal reflection

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TYPE OF PRISM	ANGLE OF PRISM	ANGLE OF INCIDENCE	ANGLE OF REFRACTION	ANGLE OF DEVIATION
RIGHT ANGLED ISOSCELES PRISM	90°	0°	0°	90°
	45°	0°	90°	90°

OBSERVATION TABLE

as the angle of incidence inside the prism, $\angle NDC$, is greater than the critical angle of the prism, $i_c = 42°$. This reflected (internally) and finally refracted emergent ray suffers a deviation from its normal course of path. The angle between the incident ray and the emergent ray is known as the angle of deviation, δ.

PROCEDURE—

(i) Place a white sheet of paper on a drawing board and fix it with drawing pins.

(ii) Place the prism in the middle and draw its outline ABC. Remove the prism.

(iii) Measure and mark angles A, B and C of this outlined triangle ABC.

(iv) Mark a point N on AB and draw line NP, as incident ray such that line NP ~~and~~ makes an angle $i = 0°$, i.e., falls normally on face AB.

(v) Place the prism again in its original position ABC.

(vi) Fix two pins P_1 and P_2 on line NP at about 10 cm distance from each other.

(vii) Remove the prism and the pins and mark the position of pins by encircling the points. Join P_3 and P_4 to meet BC at a point N'. Also, join N and N'. through D at AC the path light ray has taken inside the prism. The complete ray diagram gives the course / path of light ray through the prism when light ray is incident normally on the prism. Measure the angle of deviation δ i.e., the angle between the

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incident ray produced forward and emergent ray produced backwards.

(ix) Repeat the above procedure with the other two prisms.

PRECAUTIONS—

(i) The pins should be in a perfectly vertical position at a separation about 10 cm from each other.

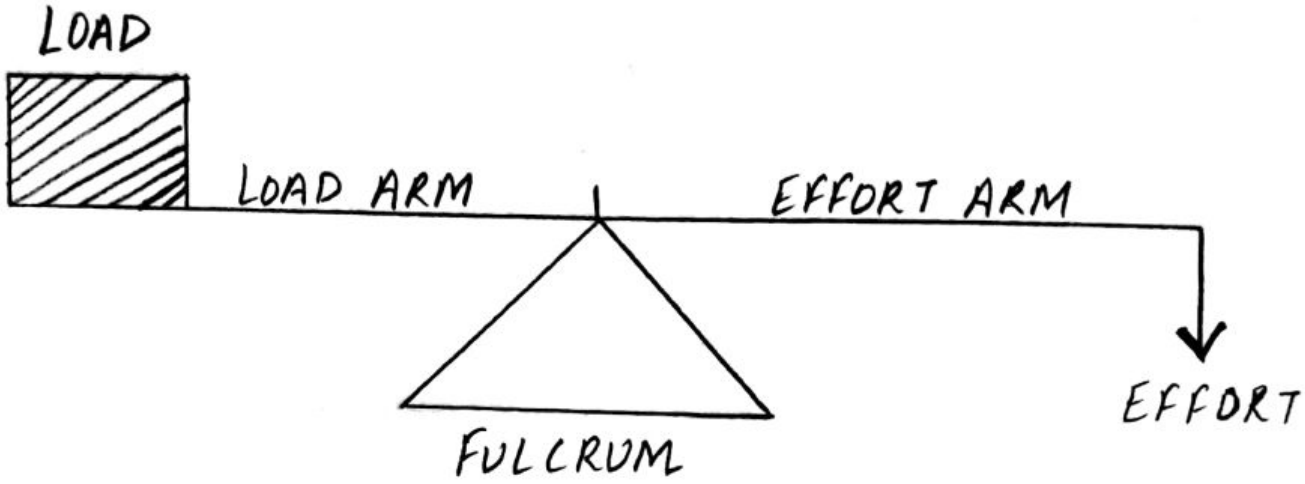
(ii) The prism should not be disturbed during the course of the experiment.

(iii) The position of the pins must be marked clearly by encircling the pins pricks.

Experiment - 4

AIM – To determine the mass of metre rule by using principle of moments

APPARATUS – Metre scale graduated in centimetre and millimetre, retort stand, 50 gf weight and thin thread



LOAD × LOAD ARM = EFFORT × EFFORT ARM

10 gf × 46 cm = x × 4 cm

EFFORT = 115 gf

RESULT — MASS OF THE RULE IS 115 g

Experiment - 4

AIM —

To determine the mass of metre rule by using principle of moments

APPARATUS —

Metre scale graduated in centimetre and millimetre, retort stand, 50 gf weight and thin thread.
In this method, we use the principle of moments. According to this principle, if a body which is capable of rotation is acted upon by a number of forces and no. of rotation takes place, then the sum of the anticlockwise moments will be equal to the sum of the clockwise moments.

THEORY —

The body (here metre scale) whose gravitational mass is to be determined is suspended from the hook of the spring balance. The body stretches the spring due to its weight and the pointer moves down. The weight is proportional to the gravitational mass ($W = m_G \times g$). The position of the pointer gives the value of the gravitational mass of the body.

PROCEDURE —

(i) Suspend the metre scale with its flat portion vertical

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in a loose thread loop suspended from a retort stand.

(ii) Adjust the position of the loop till the scale rests in a horizontal position.

(iii) Tie a weight of 50gf with a thread and suspended it at, say, 10cm mark on the left side of the fulcrum by making a loop in the thread.

(iv) The scale will be depressed on the left side slowly increase the length of the right arm, by pulling the scale on the right side across the loop of thread till it again balances in a horizontal position.

(v) Note down the distance 'x' of the weight from the new position of the loop on the left side and the distance 'y' of the CG of scale on the right side.

(vi) Repeat the experiment by changing the position of the loop containing weight at different positions.

PRECAUTIONS —

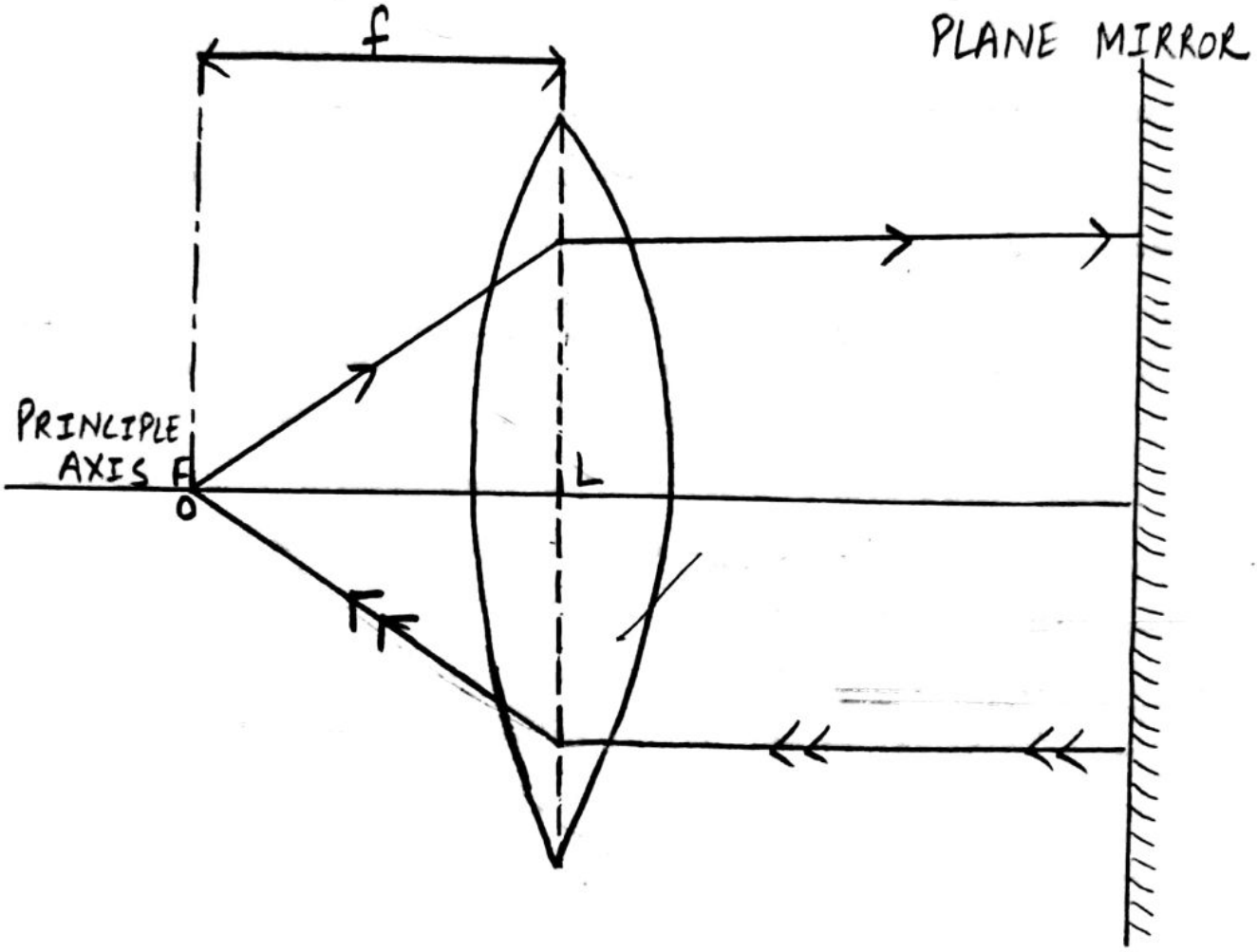
(i) The scale should be of uniform thickness.

(ii) The points where the weight and objects are suspended must be determined accurately to minimise error.

Experiment - 5

AIM – To determine the focal length of a convex lens.

APPARATUS – A convex lens, a white paper sheet (as screen), a half-metre scale, distant object (light from a building) etc.



Experiment - 5

AIM -

To determine the focal length of a convex lens.

APPARATUS -

A convex lens, a white paper sheet (as screen), a half - metre scale, distant object (light from a building) etc.

THEORY -

A distant object gives a parallel beam of light rays. When these parallel light rays pass through a convex lens, after refraction, they meet at the principle focus to form a real, inverted and diminished image of the object on the screen.
This distance between convex lens and the screen is the focal length, f of the convex lens.

PROCEDURE -

(i) Take a convex lens and point it towards a lighted, distant object like a building.
(ii) Try to focus a sharp image of the object on a sheet of paper or a wall as screen.
(iii) Using half - metre scale, measure the distance between the lens and the screen as the image is formed at focus.

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S.No.	POSITION OF LENS (L)	POSITION OF SCREW (S)	FOCAL LENGHT IN CM
1	38cm	45cm	20.64cm

OBSERVATION TABLE

(iv) Take the mean distance to get focal length.

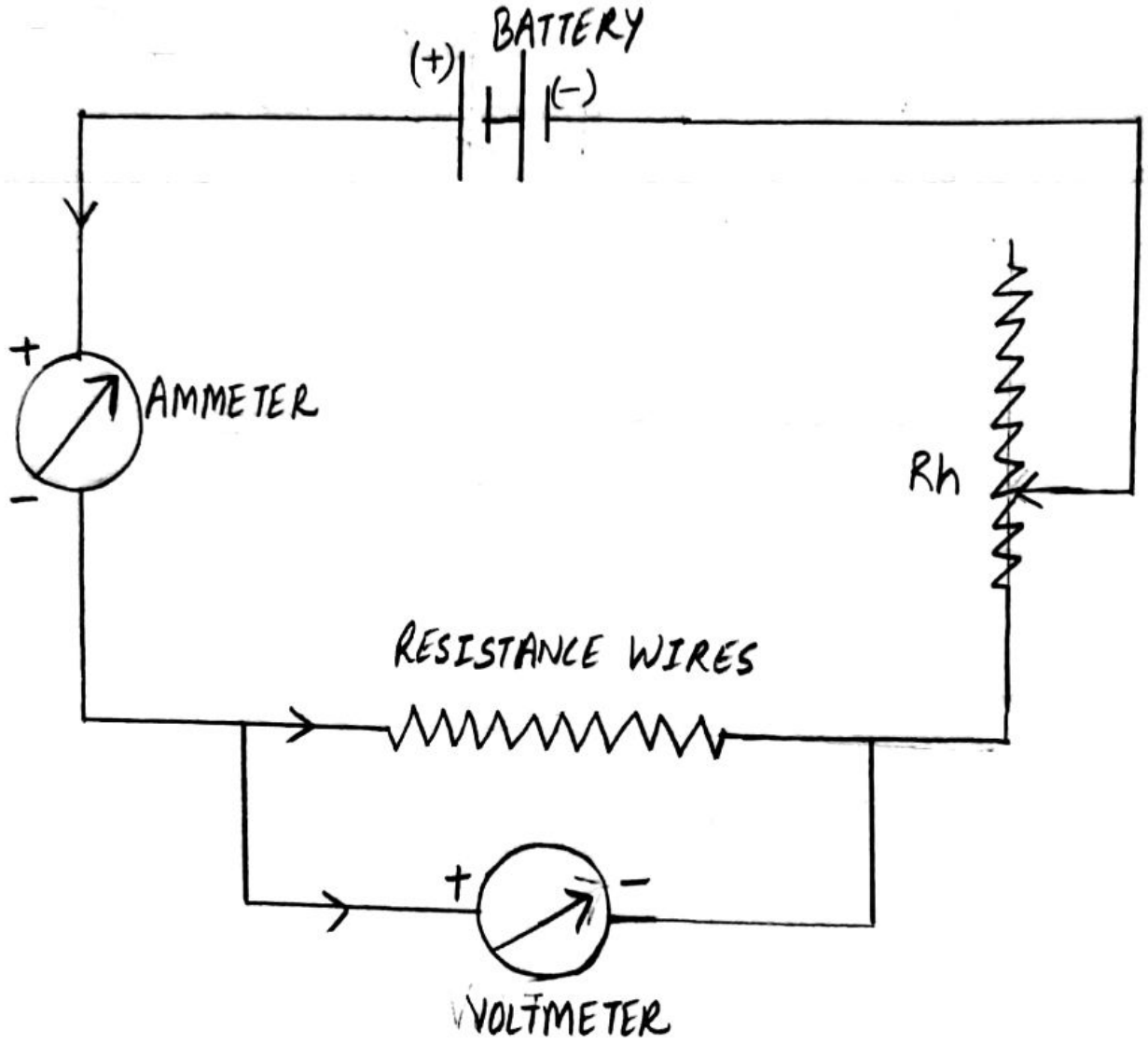
PRECAUTIONS —

(i) Experiment should be performed in a dark room so that the bright image appears clearly on the screen.
(ii) Care should be taken that the candle flame is not disturbed by air currents.
(iii) The optical centre of the lens, the candle flame and centre of the screen should be at the same height.
(iv) Proper sign conventions must be applied.

Experiment - 6

AIM - To study the dependence of potential difference and current and determine the resistance.

APPARATUS - Dry cells, ammeter of range 0-1.5A, voltmeter of range 0-15V, a resistance wire, key, rheostat and connecting wires.



CIRCUIT DIAGRAM

Experiment -6

AIM-

To study the dependence of potential difference and current and determine the resistance.

APPARATUS-

Dry cells, ammeter of range 0-1.5A, voltmeter of range 0-15V, a resistance wire, key, rheostat and connecting wires.

THEORY

Ohm's law

Ohm's law states that, temperature and other physical conditions remaining constant, the current passing through a conductor in a closed circuit is directly proportional to the potential difference across its two ends.

$$\Rightarrow V \propto I$$

$$V = IR$$

where, V is potential difference is Volt
I is current in Ampere and
R is the proportionally constant called resistance, in ohms (Ω)

The components that conduct current in accordance with Ohm's law are said to be ohmic.

S.No.	POTENTIAL DIFFERENCE	CURRENT	RESISTANCE
1	1 V	100 mA	10 Ω
2	2 V	200 mA	10 Ω
3	3 V	300 mA	10 Ω

OBSERVATION TABLE

MEAN RESISTANCE $= \frac{10+10+10}{3}$

$= \frac{30}{3}$

$= 10\ \Omega$

PROCEDURE —

(i) Arrange the apparatus on the table and make the circuit connections.
(ii) Connect the ammeter in series and the voltmeter in parallel with the resistance with the help of connecting wires.
(iii) Note down the least count and zero errors of the ammeter and voltmeter.
(iv) Insert the plug key.
(v) Adjust the rheostat so as to register a small current in the resistance wire.
(vi) Note down the corresponding ammeter and voltmeter readings.
(vii) Move the variable terminal of the rheostat to increase the current in regular steps and note the ammeter and voltmeter readings.
(viii) Take at least 4 more sets of readings.
(ix) Plot a graph between V and I and find its slope.

PRECAUTIONS —

(i) The signs of the terminal should be clearly shown in the circuit diagram.
(ii) Clean the ends of the connecting wires with sand paper before making the connections.
(iii) Remove the key, when the readings are not being taken.
(iv) The voltmeter should have a high resistance while the ammeter should have a low resistance.
(v) Take the care that the cells is not short circuited.

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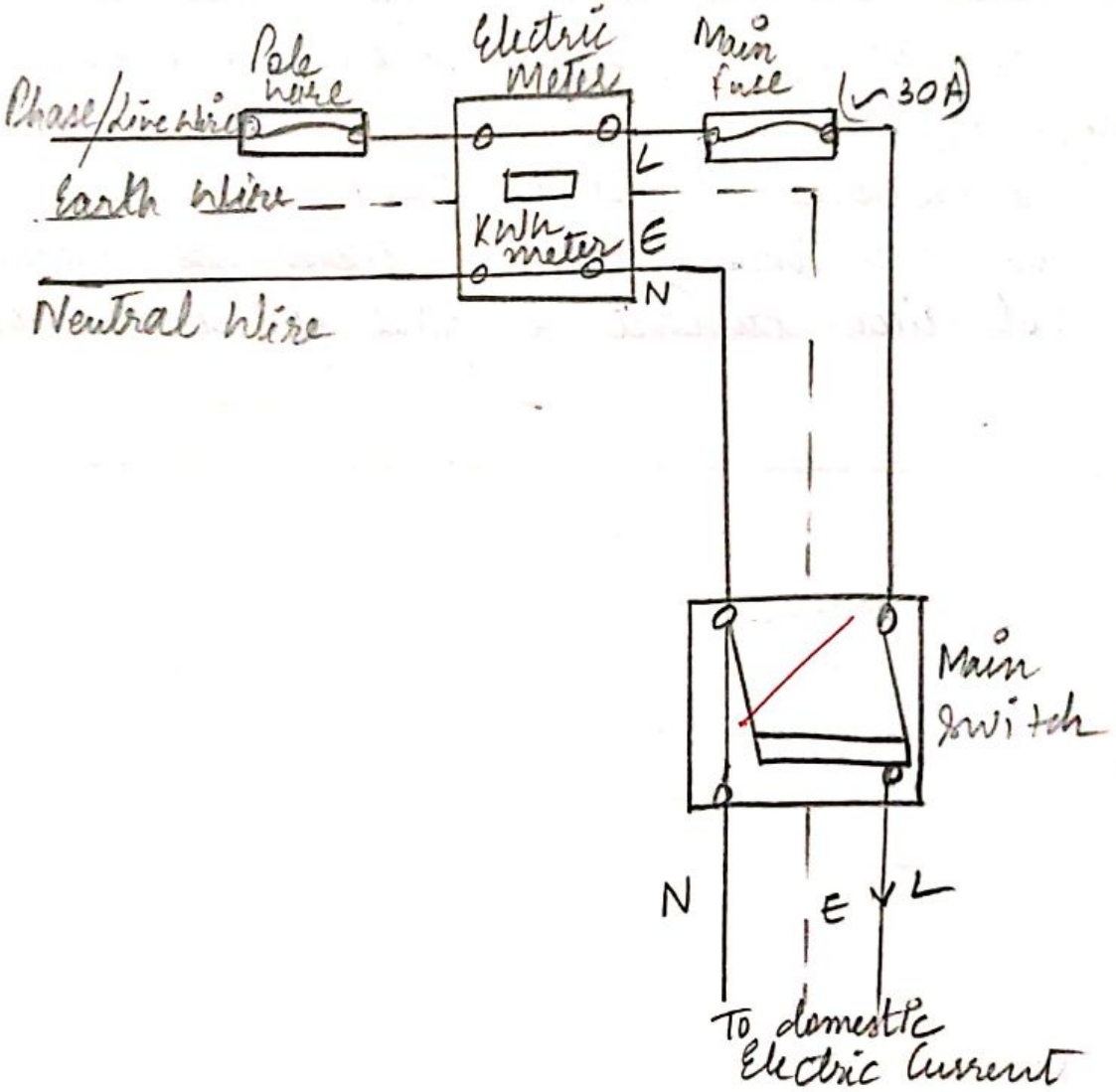
(vi) The range of the voltmeter should be more than the e.m.f of the cell.
(vii) The connections should be tight.
(viii) A low rheostat should be used.
(ix) Do not allow the current to pass for a very long time.
(x) The voltmeter should always be connected in parallel and ammeter in the series with the circuit.

Experiment: 7

Aim of the Experiment: To set up a model of household wiring system using mains circuit.

Apparatus: Three-cored electric wire, switches, wall sockets, plugs, bulb holder, fuse of different rating (5A, 10A, 15A, etc.), screw driver, a switch board with mica sheets for switches, etc.



Household Wiring Circuit

Experiment: 7

Aim of the Experiment:
To set up a model of household wiring system using main circuit.

Apparatus:
Three-cored electric wire, switches, wall sockets, plugs, bulb holder, fuse of different ratings (5A, 10A, 15A, etc.), screw driver, a switch board with mica sheets for switches etc.

Procedure:
Electricity board of a state is responsible for the electric power supply to the consumer, and the power is supplied through underground cables or overhead wires on poles. These supply wires are three in number:
1) Phase Wire (live wire),
2) Neutral Wire,
3) Earth Wire.

For a power distribution in house, the three wires can be arranged in the latest system of power distribution known as ring system. The three wires, in this system, i.e., the live wire, Neutral wire and Earth wire

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start from the main fuse box containing a main fuse of about 30A.

The wiring runs around different rooms of house in the forms of a ring (closed) and ends in the fuse box again.

In the ring system, each appliance is connected in parallel across the live wire and the neutral wire (or Earth wire for heavy appliances). This is done to ensure full voltage from the mains to the appliances like bulbs, fans, oven, sockets, heaters, etc. If one of the appliances is switched off or short circuited or gets fused, the other appliances are not affected.

All electrical appliances are provided with separate switches to switch 'on' or 'off' the flow of current to it. All the switches are put in live wire, to completely cut-off the appliance from the source of current and to safeguard the consumer from the danger of electric shock.

Also, each distribution line of the house is provided with a separate fuse / a safety device in the form of a small piece of wire from an alloy of tin (63%) and lead (37%),

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having high resistance and low melting point). Since the melting point of fuse wire is low, it melts immediately when large current passes through the circuit due to overloading / short-circuiting, thus, breaking the flow of current through the circuit before any damage can be done to the rest of the wiring circuit.

Hence, a model can be made on the basis of ring system of power distribution can be set-up by connecting any no. of distributions lines to main ring.

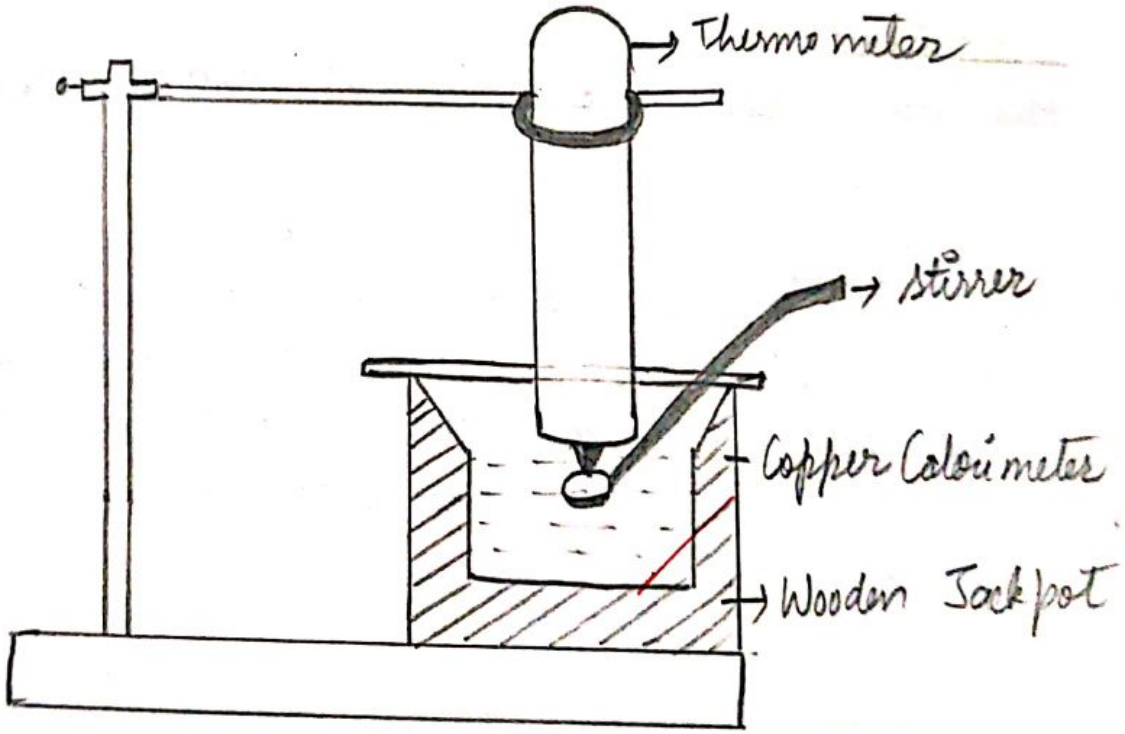
Precautions:

(i) Cover all naked joints with the help of adhesive insulating tape.
(ii) All the connections should be tight.
(iii) Never touch the wires with bare hands. Wear rubber gloves and rubber shoes to avoid shock.
(iv) Make sure that all the switches are put in live wire.
(v) Use fuse wire and connecting wires of proper rating and of good quality.

Experiment: 8

Aim of the Experiment: To determine the heat capacity of a material of a given calorimeter.

Apparatus: A calorimeter with outer jacket, two half degree thermometers and weight box.



Calorimeter with outer Jackpot

Experiment: 8

Aim of the Experiment:
To determine the heat capacity of a material of a given calorimeter.

Apparatus:
A calorimeter with outer jacket, two half degree thermometers and weight box.

Theory:
The specific heat of the material (copper) of calorimeter can be found by the method of mixtures.

A mass (M) of hot water at temperature (t_1), is added to cold water of mass (m) at temperature (t_2) in a calorimeter of mass (m). Heat is lost by hot water and is gained by cold and calorimeter.

The final temperature becomes (t)

Heat lost by hot water = $M(t_1 - t_2)$

Heat gained by cold water and calorimeter =

$$M(t_1 - t_2) + WC(t_1 - t_2)$$
$$= (t_1 - t_2)(m + WC)$$

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where c is specific heat of material of calorimeter.

Now, Heat gained = Heat lost

$$(t_1 - t_2)(m + wc) = M(t_1 - t_2)$$

$$m + wc = \frac{M(t_1 - t_2)}{(t_1 - t_2)}$$

$$c = \frac{M(t_1 - t_2)}{w(t - t_2)} = \frac{m}{w}$$

Procedure:

(i) Note the room temperature with the two thermometers A and B.

(ii) Find the mass of empty and dry calorimeter along with stirrers.

(iii) Put some cold water (about half) in this calorimeter and find its mass again.

(iv) Place this calorimeter in the outer jacket. Note down the temperature of this cold water, see that thermometer does not touch the sides or bottom of calorimeter.

(v) Take some hot water and fluid its. Its temperature should be between 70°-80°C

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(vi) Put this water into cold water taken in calorimeter. Stir gently with the help of stirrer and note the final temperature.

(vii) Find the mass of calorimeter along with the mixture of cold water, hot water and stirrer.

Precautions:

(i) Initially the calorimeter should be dry.
(ii) Do not fill the calorimeter completely with water.
(iii) Stir gently while adding hot water into cold water.
(iv) Note the maximum final temperature of mixture.
(v) Temperature connection should be applied.
(vi) Correct thermometer should be used in calorimeter.

Experiment : 9

Aim of the Experiment : To determine the Specific heat of metal by the method of mixture

Apparatus : A calorimeter with non-conducting jacket, the given metal in the form of powder, two half-degree thermometers, hypsometer apparatus, burner, physical balance, weight box and fractional weights.

Mass of the Metal	29.68 g
Specific heat capacity of brass bake C_1	56°C
Change in Temperature. ΔT_1	29°C
Mass of water, M_2	40g
Specific heat capacity of water and calorimeter	25°C
Change in Temperature. ΔT_2	2°C

Observations

Experiment : 9

Aim of the Experiment:
To determine the specific heat of metal by the method of mixture.

Apparatus:
A calorimeter with non-conducting jacket, the given metal in form of powder, two half degree thermometers, hypsometer apparatus, burner, physical balance, weight box and fractional weights.

Theory:
Specific heat of metal is determined by the method of mixtures. When some hot metal is put into the water taken in calorimeter, then the heat is lost by metal. Heat is gained by water and calorimeter and its temperature rises. If the heat is not allowed to radiate from the surface of calorimeter, then

Heat lost by metal
= Heat gained by water and calorimeter.

let (t_1) be the initial temperature iron and (c) its specific heat, (m) the mass of water and (t_2) its temperature.

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Calculations :—

According to principle of calorimeter :-

Heat lost by the metal = Heat gained by water and calorimeter

$$m c_1 \Delta t_1 - m_1 c_2 \Delta t_2 = 0.38932$$

$$C_1 = \frac{40 \times 42 \times 42}{29.76 \times 29} = \frac{336}{863.04}$$

$$= 0.38932$$

Result : The specific heat capacity of metal $= 0.38932 \, J g^{-1} C^{-1}$.

Let (t) is the final temperature of mixture and (w) the water equavalent of calorimeter.

Then,

fall in Temperature of iron dust = $(t_1 - t)$

Rise in Temperature of water and calorimeter $= (t - t_2)$

Heat lost by iron dust = $Mc(t_1 - t)$

Heat gained by water and calorimeter = $(m+w)(t - t_2)$

Acc. to principle of heat,
Heat Gain = Heat Lost

$$Mc(t_1 - t_2) = (m+w)(t_1 - t_2)$$

$$c = \frac{(m+w)(t - t_2)}{m(t_1 - t)}$$

Procedure:

Find the room temperatures with both thermometers A and B.

(i) Take some metal powder (say iron dust). Find its mass by using the physical balance and fractional weight.

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(ii) Put this iron dust in the copper calorimeter of hypsometer. Heat it in the steam till its temperature becomes constant as recorded by thermometer B.
Note down its temperature.

(iii) Find the mass of empty and dry calorimeter. Put some cold water in calorimeter and again find its mass. Calculate the mass of water from these two readings.

(iv) Note down the initial temperatures of water. Now, place the calorimeter in the insulating jacket.

(v) Transfer the hot iron dust immediately and gently into the calorimeter without loss of time and stir well. Note down the final maximum temperature of mixture of water & iron dust.

(vi) Note the specific heat of copper from the standard table.

Precautions :-

(i) The metal should be in dust form
(ii) The metal dust should not have any impurity.
(iii) The metal dust should be immediately and gently transferred to water so that its temperature may not fall.
(iv) The mixture should be stirred well but gently.

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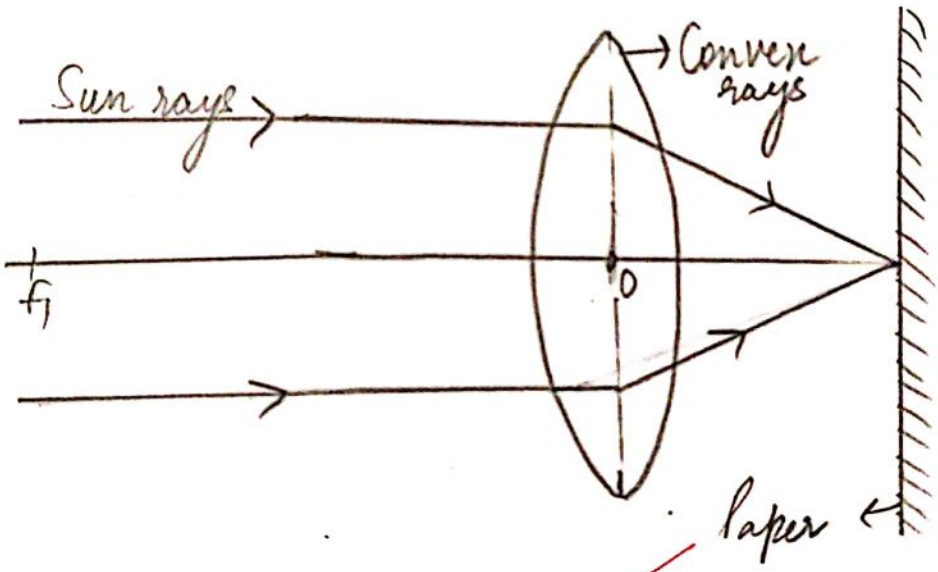
(v) Half degree thermometres should be used.
(vi) The physical balance should be set properly before its use.
(vii) Temperature correction should be applied.

Experiment : 10

Aim of the Experiment : To burn a piece of paper using convex lens.

Apparatus : Convex lens, a piece of paper.



Burning Piece of Paper using Convex Lens

Experiment: 10

Aim of the Experiment:
To burn a piece of paper using a convex lens.

Apparatus:
Convex lens, a piece of paper

Theory:
When light rays from infinity are incident on convex lens, they are converged at the focus of the lens after refraction through lens.

Procedure:
(i) Take a piece of paper and a ~~magnifying glass~~ convex lens.

(ii) Determine the focus length of ~~[illegible]~~ convex lens.

(iii) Focus the sun rays on a piece of paper placed in second focal plane of the lens.

(iv) In about one minute, the paper burns due to the heat of sun rays.

26/8/16

Dharma