Date

Expt. No. 01 Page No. 01

Aim of The Experiment:-
To find the diameter and determine the cross sectional area of a given wire by using screw gauge.

Apparatus Required:-
→ Wire
→ Screw gauge

Theory:-
Pitch of a screw is defined as the distance between the two of its consecutive threads as measured along the axis of the screw.

$$\text{Pitch} = \frac{\text{distance moved by the screw}}{\text{no. of rotations given}}$$

$$= \frac{5}{5} = 1\text{ mm}$$

Least Count:- It is the least count / measurement which can be performed with the help of screw.

$$\text{Least count} = \frac{\text{Pitch}}{\text{total no. of division of circumstance}}$$

$$= \frac{1\text{ mm}}{100}$$

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Abhi..

= 0.01 mm
or
0.001 cm

Area of Cross section = πr^2

Zero error : If the linear scale of '0' does not coincide with the circular scale of '0' the zero error obtained

Zero error = ± a × L.C =
⇒ Negative zero error = ..

Procedure :-

(i) The pitch and the least count of the screw gauge are determined by the method of given in the theory.

(ii) The wire is placed in the gap and the screw head is turned till the wire is touched by the two Jaws. In their position in the main scale two Jaws. In their position in the main scale reading is to be noted.

(iii) The Circular scale is noted down where the reference line coincide with the circular scale.

(iv) The main scale reading and circular scale reading are found out and their sum gives the diameter of the wire.

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Date

Page No. 03

Expt. No. 01

(v) The above procedure is respected for 10 time and their mean value is calculated to get diameter of the wire.

(vi) The radius can be calculated by the formula $r = d/2$

Observation : To find the diameter of the given wire (d)

Result :- The Area of Cross-section of the given wire is 02.098 cm²

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Abhi..

Date

Expt. No. 02 Page No. 05

Aim of the Experiment:
To find the volume of a Rs 2 coin using screw gauge.

Apparatus Required:
→ Screw gauge
→ 20 rupees coins

Theory:
Thickness Pitch scale reading + Circular scale reading
Pitch scale reading (P.S.R) = Pitch (P) × No of Complete rotations (N)
∴ P.S.R = P × N
Circular scale reading (C.S.R) = Difference between initial circular scale coincidence (I) and final circular scale coincidence (F) × Least count
∴ C.S.R = (I.F) × L.C

Hence Diameter = [(P×N) + (I.F) × L.C]

If A be the area of the Rs 2 coin and t be it's thickness then the volume 'V' of irregular Rs 2 coin is given by V = $st\ cm^3$.

Area of Rs-2 coin from graph paper
· [{No of big square divisions (N) × Area of each big square division (A)} + {No of small Square division (n) × Area of each small square division (a)}]

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Abhi..

Expt. No. 02 Page No. 06 Date

Or, $S = (NA + na)\ cm^2$

Thickness of Rs 2 coin = Pitch scale reading + Circular Scale reading

Or, $Z = P \times N + (I - F) \times L.C$

Where P = Pitch of the screw gauge, N = no. of complete relation, I = Initial circular scale coincidence, F = Final coincidence L.C = least count.

Determination of pitch and L.C

10 division of linear scale = 1cm / 0.5cm

1 division of linear scale = 0.1cm / 0.05cm

Here, 1 complete rotation = 0.1cm / 0.05cm

So, pitch = 0.1cm or 0.05cm

$$\text{Least Count} = \frac{\text{Pitch}}{\text{Total no. of divisions on the circular scale}}$$

$$L.C = \frac{0.1\,cm}{100} = 0.001\,cm \text{ or } \frac{0.05\,cm}{100} = 0.0005\,cm$$

Procedure:-

(1) The given irregular Rs 2 coin is placed at Ten different places on the graph paper and its outline is drawn at each location with the help of a pencil.

Teacher's Signature

Expt. No. 02

Page No. 07

Date

(vi) The outlines are numbered as figure 1, figure 2 etc.
(vii) The total no. of big square divisions and small square divisions enclosed inside the outline boundary are counted.
(viii) The small square along the boundary is counted as one if the line covers half or more than half of its area.
(ix) All the reading are noted in the table and the area of each figure is found out. The mean area is also counted and recorded.
(x) The pitch and L.C. of the screw gauge and determined and by placing the Re 2 coin in between the two jaw I, F and N are found out.
(xi) All these readings are recorded in a tabular form and the thickness of the Rs 2 coin is determined. This procedure is repeated for at least 10 observations and the mean thickness is noted.
(xii) By using the formula given in the theory, the volume of Rs 2 coin is calculated.

Observation:
Zero error is negative zero error =

Tabulation: I
(Thickness of Rs 2 coin) (t)

Sl No.	M.S.R (a) In mm	Head Coincidence (b) Observed	Head Coincidence (b) Corrected	C.S.R. In mm (b × L.C)	Total (M.S.R + C.S.R)	Mean
1.	1	25	16.5	0.25	1.25	
2.	1	15	9.5	0.15	1.15	

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Result :-

The volume of Rs 2 coin is found

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Date

Expt. No. Page No.

Aim of the Experiment :- 3

To find the volume of a solid cylinder by using a vernier Calliper.

Apparatus Required :-

Slide Calliper, Solid Cylinder.

Theory :-

Length of the cylinder = Main Scale reading + vernier scale reading.

Vernier scale reading = Vernier coincidence × least count

Tabulation of least count:

$$\text{Least Count} = \frac{1\ \text{M.S.D}}{\text{Total V.S.D}}$$

10 M.S.D = 1 cm

1 M.S.D = $\frac{1}{10}$ cm = 0.1 cm

$$= \frac{0.01}{10} = \frac{0.1}{10}$$

$$= 0.01\ \text{cm}$$

Determination of Zero Error :

The type of instrument error found with the slide calliper is called zero error. These below are the three types of zero error.

i) No zero error - If the zero of the main scale coincides with the zero of the vernier scale it is said as no zero error.

ii) +ve zero error - If the zero of the vernier scale is on the right side of the main scale it is called as positive zero error.

Date

Expt. No. Page No.

(iii) -ve zero error: If the zero of the vernier scale is on the left side of the main scale it is said to be negative zero error.

Procedure :-

(i) The solid cylinder is to be presented in the form of diameter in such a way that both the jaws of the vernier callipers holds the solid cylinder.

(ii) The solid cylinder placed in between the two jaws and it is changed a various no. of times to get the diameter.

(iii) The readings are to be taken while doing each of the observation.

(iv) The length of the solid cylinder is taken when the cylinder is placed in parallel to the slide calliper.

(v) The procedure is repeated to get the length of the solid cylinder.

(vi) The experiments are repeated and the observations are considered.

Expt. No. _____ Date _____

Page No. _____

Observation :-

Tabulation-1

(External Diameter of the solid cylinder)

Sl No.	Least count in cm (L.C.)	Main scale reading in cms M.S.R	vernier coincidence (V.C)	vernier scale reading in cm (V.S.R) (V(XLC)	Total diameter (M.S.R+V.S.R)	Mean zero error in cm	zero error in cm	Corrected diameter in cms
1	0.01	1.2	9	0.09	1.29			
2	0.01	1.2	8	0.08	1.28			
3	0.01	1.2	8	0.08	1.28			
4	0.01	1.2	9	0.09	1.29			
5	0.01	1.2	9	0.09	1.29	0	0	1.288
6	0.01	1.2	9	0.09	1.29			
7	0.01	1.2	9	0.09	1.29			
8	0.01	1.2	9	0.09	1.29			
9	0.01	1.2	9	0.09	1.29			
10	0.01	1.2	9	0.09	1.29			

Expt. No. _____ Date _____

Page No. _____

Tabulation - 1 (Length of solid cylinder)

Sl. No.	Least count in cms (L.C)	Main scale reading in cms (M.S.R)	Vernier coincidence (V.C)	Vernier scale reading in cms (V.S.R)	Observed Length in cms (MSR + VSR)	Mean zero error in cm	Zero Error in cm	Corrected Length in cms (l)
1	0.01	10.1	6	0.06	10.16			
2	0.01	10.1	4	0.04	10.14			
3	0.01	10.1	3	0.03	10.13			
4	0.01	10.1	4	0.04	10.14	0	0	10.145
5	0.01	10.1	4	0.04	10.14			
6	0.01	10.1	4	0.04	10.14			
7	0.01	10.1	5	0.05	10.15			
8	0.01	10.1	6	0.06	10.16			
9	0.01	10.1	4	0.04	10.14			
10	0.01	10.1	5	0.05	10.15			

Calculation :-

The diameter of the solid cylinder = 1.288

So, radius = $D/2 = 1.288/2 = 0.644$

And, Length of the solid cylinder (l) = 10.145

Hence,

Volume (V) = $\pi r^2 l$ cm^3

$= \frac{22}{7} \times (0.644)^2 \times 10.145$

$= 3.14 \times 0.414736 \times 10.145$

$= 13.21153$

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Date

Expt. No.

Page No.

Result :-

The volume of the solid cylinder is found 13.21153

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Date 02.05.23

Expt. No. 04 Page No. 13

AIM OF THE EXPERIMENT :

To find the volume of a hollow cylinder using a vernier calliper.

APPARATUS REQUIRED :

Slide calliper

Hollow cylinder meter scale

THEORY SCALE :

Depth of the cylinder = Main scale reading + vernier scale reading = M.S.R + (V.C + L.C)

CALCULATION OF L.C :

(a) Standardization of main scale : 10 MSD = 1 CM

1 MSD = 0.1 CM

(b) Least count = 1 MSD = 1 VSD

(or) 10 VSD = 1 MSD

10 VSD = 0.9 CM

So, 1 VSD = 0.1 CM

Hence L.C = 0.1 CM = 0.09 CM

= 0.01 CM

Teacher's Signature

DETERMINATION OF ZERO ERROR :-

The type of instrument error found with the slide calliper is called zero error. These are the three types of zero error written below.

(i) No zero error :- If the zero of the main scale coincides with the zero of the vernier of is said as so.

Zero error

(ii) +ve zero error :- If the zero of the vernier scale is on the right side of the main scale it is said as the zero error

(iii) -ve zero error :- If the zero of the vernier scale is on the left side is of the main scale it is said as -ve zero error.

PROCEDURE :-

1. The L.C of the instrument is first calculated by taking the difference in the volume of 1MSD and 1VSD.
2. The zero error is found and by taking into the zero of the main scale and vernier scale when the jaws are closed.
3. The given hollow cylinder is introduced in the lower jaw and the external is found out
4. The above procedure is repected for at least 10 times to find the internal diameter in hollow cylinder.
5. The hollow cylinder is placed on the upper jaw to find the internal diameter of the given cylinder.

6. The procedure is repeated a least 10 times to get the internal diameter
7. The depth of hollow cylinder can be measured by the stripe of the vernier calliper
8. The stripe is introduced inside the hollow cylinder in such a way that the edge of the hollow cylinder.
9. The observation is taken at least 10 times.
10. All the readings for external diameter and depth of the cylinder are recorded in table.

THEORY

Let D = External diameter of cylinder
d = Internal diameter
h = depth of cylinder

Date 02.05.23

Expt. No. 04 Page No. 17

CALCULATION :-

External diameter (D) = 2.54 cm
Internal diameter (d) = 2.23 cm
Depth (h) = 7.52 cm

Volume of hollow cylinder

$= \frac{\pi}{4}(D^2 - d^2)h$

$= \frac{3.14}{4}\{(2.54)^2 - (2.23)^2\}\ 7.52$

$= 8.72\ cm^3$

RESULT :- The volume of hollow cylinder is $8.72\ cm^3$.

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Teacher's Signature

09/05/2023

AIM OF THE EXPERIMENT :-

Measurement of radius curvatures of convex surfaces of a watch glass.

APPARATUS REQUIRED :-

Spherometer
Watch glass
Base plate

THEORY :-

If R_1 is the radius of curvatures of convex surface of the given watch glass then

$$R_1 = \frac{d^2}{6h_1} + \frac{h_1}{2}$$

where h_1 = height of the convex surface from the base plate d = distance between any pair of fixed legs.

Determination of pitch and L.C of spherometer

10 division of linear scale = 1 cm
1 division of linear scale = 0.1 cm
1 complete rotation = 1 division of linear scale
Hence, pitch = 0.1 cm

$$L.C = \frac{\text{Pitch}}{\text{Total no. of division on the circular scale}}$$

$$= \frac{0.1\ cm}{100} = 0.001\ cm$$

Teacher's Signature

Height = Pitch Scale reading + circular scale reading
= P

PROCEDURE :

(1) The pitch and L.C of the spherometer are determined
(2) The watch glass is placed with convex surface up on the base plate and over the convex surface the spherometer is placed.
(3) The central leg is moved downwards gradually in such away that it just touches the top profounding part of convex surface at this position the tip of central leg and its reflecting image just coincides
(4) The initial circular scale coincidence is noted at such position. The watch glass is the taken and of the base and the spherometer is placed on it.
(5) The central leg is gradually lowered down till just touches the have plate. The no of complete rotation is noted and than the circular is bound out when central leg touches the base plate.
(6) All these reading are recorded on the table and the height of convex surface is calculated.
(7) The above procedure is repeated for at least ten more observation and mean value of x_1 is calculated.
(8) To find 'd' the three legs of the spherometer is pressed on a graph paper pit three different location. the three points obtained from pressing is going to a equilateral triangle three such figures are obtained from which mean value of 'd' is calculated.
(9) The value of the radius of curvature is calculated by using formula given in the theory.

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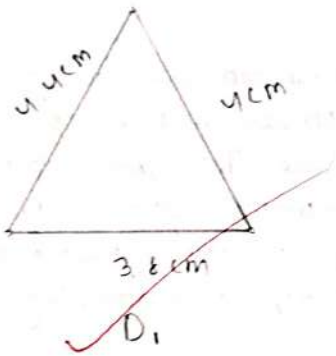
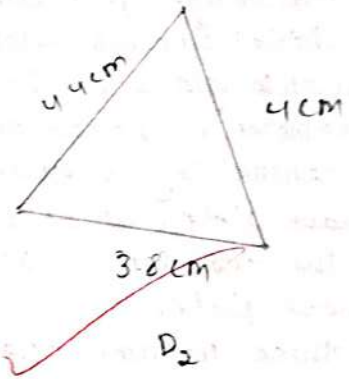
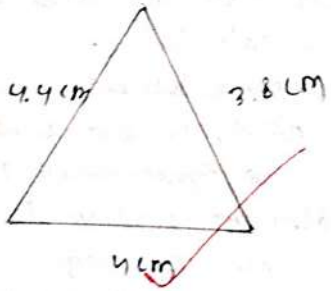


D_1



D_2



D_3

Date 07.05.23

Expt. No 05 Page No. 21

CALCULATION :-

Height of the convex surface = 0.2768 cm

$d = 4.06$ cm

$$R_1 = \frac{d^2}{6h_1} + \frac{h_1}{2}$$

$$= \frac{(4.06)^2}{6 \times 0.27} + \frac{0.27}{2}$$

$$= \frac{16.48}{1.62} + \frac{0.27}{2}$$

$$= 10.307 \text{ CM}$$

RESULT :- The radius curvetures of convex surface is 10.307 cm

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Expt. No. 06

Page No. 22

AIM OF THE EXPERIMENT :-

To determine the radius of curvature of concave surface by using spherometer.

APPARATUS REQUIRED :-

i) Spherometer
ii) Watch glass
iii) base plate

THEORY

R_g is the radius of curvature of concave and concave surface of the given watch glass then

$$R_g = \frac{a^2}{6h_g} + \frac{h_g}{2}$$

h_g = Height of the concave surface from the base plate.

Determination of pitch and L.C of the spherometer

10 division of linear scale = 1 cm
1 division of linear scale = 0.1 cm
1 complete rotation = 1 division of linear scale.

Hence, pitch = 0.1 cm

$$L.C = \frac{\text{Pitch}}{\text{Total no. division on the circular scale}} = \frac{0.1\text{cm}}{100}$$

$$= 0.001\text{cm}$$

Teacher's Signature

Expt. No. 06

Page No. 33

PROCEDURE :-

i) The pitch and L.C of the spherometer are determined.
ii) The spherometer is placed over the concave surface of the base plate.
iii) The central leg is moved downwards gradually in such a way that it just touches the lowest part of the concave surface.
iv) The initial circular scale coincidence is noted at such position.
v) The central leg is gradually rotated upward till it touches and remains balanced on the base plate then the final circular scale is noted.
vi) The above procedures are repeated for at least ten more observations and the mean value of h_2 is calculated.
vii) To find the value of d, the three legs of the spherometer is passed on a paper at three different positions. The three point obtained from pressing is joined to get an equilateral triangle. Three such leg was obtained from which mean value of d is calculated.
viii) The value of R_2 is calculated by using the formula given in the theory.

Teacher's Signature

Expt. No. 06

Date 16.05.23

Page No. 24

OBSERVATION :-

Table-1

Sl No.	Pitch in cm	L.C in cm	Initial Scale reading (i)	No. of rotation (N)	Final Scale reading (f)	Difference f~i	Pitch scale reading	Circular Scale reading L.C × D	Total height PSR + CSR	mean
1	0.1	0.001	22	6	1	31	0.6	0.031	0.631	
2	0.1	0.001	45	6	2	43	0.6	0.043	0.643	
3	0.1	0.001	35	6	3	32	0.6	0.032	0.632	$\frac{6.295}{10}$
4	0.1	0.001	30	6	5	25	0.6	0.025	0.625	
5	0.1	0.001	40	6	4	36	0.6	0.036	0.636	$= 0.6295$
6	0.1	0.001	37	6	10	27	0.6	0.027	0.627	
7	0.1	0.001	27	6	15	12	0.6	0.012	0.612	
8	0.1	0.001	90	6	28	2	0.6	0.002	0.602	
9	0.1	0.001	90	6	9	11	0.6	0.011	0.611	
10	0.1	0.001	95	6	10	15	0.6	0.015	0.615	

Table-2

Sl No	D_1 in cm	D_2 in cm	D_3 in cm	$D = \frac{D_1 + D_2 + D_3}{3}$	mean d
1	4	4.5	4.2	4.23	$\frac{12.69}{3}$
2	4.2	4	4.5	4.23	$= 4.23$
3	4.5	4.2	4	4.23	

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CALCULATION :-

Height of the concave surface = 0.6925 cm

$d = 4.23$ cm

$$R_2 = \frac{d^2}{6h_2} + \frac{h_2}{2}$$

$$= \frac{(4.23)^2}{6 \times 0.62} + \frac{0.62}{2}$$

$$= \frac{17.89}{3.72} + 0.31$$

$$= 4.80 + 0.31$$

$$= 5.11 \text{ cm}$$

RESULT :- The radius curvatures of concave surface is 5.11 cm

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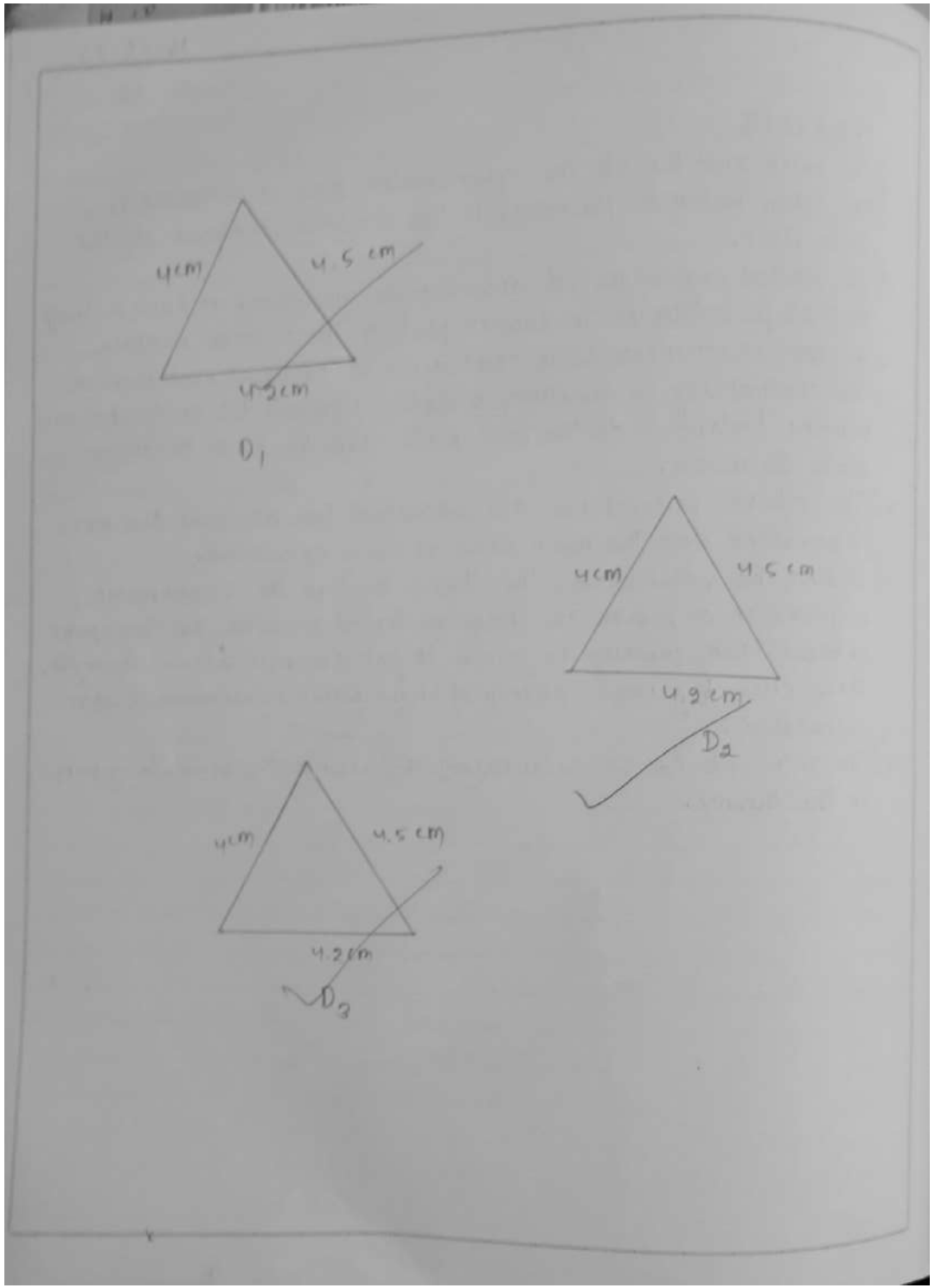
4cm
4.5 cm
4.5cm
D1
4cm
4.5 cm
4.9 cm
D2
4cm
4.5 cm
4.2cm
D3

Expt. No. 07 Date 31.05.23

Page No. 26

AIM OF THE EXPERIMENT :-

To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.

APPARATUS REQUIRED :-

A spherical metallic bob with a hook, 2 meters long thread, split cork, clamp stand, slide callipers, metre, scale, stop watch.

THEORY :-

The time period of a simple pendulum is given by

$$t = 2\pi\sqrt{\frac{l}{g}} \quad \text{or} \quad t^2 = 4\pi^2 \frac{l}{g}$$

$$\Rightarrow \boxed{g = 4\pi^2 \frac{l}{t^2}}$$

where, l = effective length of the simple pendulum

g = acceleration due to gravity at the place of observation.

PROCEDURE :-

(1) The value of (2th) is determined by substracting the value of radius of the bob from 2Rth. The values of R and 2Rth are calculated with the help of slide calliper.

(2) A thread is taken and small ink marks are given at places where the length of the thread when added to the value of Rth gives effective length a whole number like 40 cm, 50 cm, ---- 120 cm respectively.

Teacher's Signature _____

(3) The thread is now introduced between the split cork and clamped in such a way that the point of suspension (lower surface of the cork) from the centre of the bob is 120 cm.

(4) A chalk mark is given on the edge of the table as mean position of pendulum. Two chalk marks are drawn about 3 cm on either side of the mean like to apart limit the amplitude of oscilation to 4°.

(5) The pendulum is now allowed to oscilate about the mean position in a vertical plane without spinning. For this the bob is drawn parallel to the edge of the tube through a small distance and allowed to go for oscillation.

(6) The time period for 20 oscillation is noted by stop watch this process is repeated thrice and the mean value of the period is calculated. The time period 'T' of simple pendulum for each bob for effective length 120 cm.

(7) The pendulum is suspended from one effective length and the mean time for 20 oscillations is calculated. The time period 'T' of simple pendulum for each bob for same effective length obtained by dividing the mean value by 20.

(8) Different bob of same size but different masses are taken and similarly time period T is found out.

(9) Graph are drawn taking effective length along x-axis and T^2 along y axis straight line passing through the origin are obtained.

(10) From graph l/T^2 is calculated in each case and acceleration due to gravity (g) is found out.

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RESULT :- Hence, the acceleration due to gravity 'g' of simple pendulum is 973.95 cm/s².

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31/05/23

AIM OF THE EXPERIMENT :-

To find the angle of prism

Apparatus Required :-

i) Drawing Board
ii) Fixing pins
iii) Prism
iv) protractor
v) Drawing tine

THEORY

The angle of between two surfaces of a prism is known as refracting angle on angle of prism. The angle of prism is 60° i.e $\angle A = 60°$.

PROCEDURE :-

1. Fix the sheet of papers on the drawing board by stretching its edges.
2. place the prism on the papers and draw the outline of it.
3. Draw a parallel line on both the sides of prism from the mid halls of the prism.
4. place two pins on either side of the prism and by looking through the prism the other two pins are fixed which is gives the refraction. It looks like in straight line.
5. Repeat the process for the other side of prism.
6. The experiment is to be refeated for at least 5 times and the mean should be calculated.

Teacher's Signature

Expt. No. 08

Date 06.06.93

Page No. 31

OBSERVATION :-

Sl.no	Angle of prism L.A	Mean

RESULT :-

Therefore the Angle of prism to be 60.2°.

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Date 23.06.23

Expt. No. 09 Page No. 32

AIM OF THE EXPERIMENT :-

To determine the angle of minimum deviation by I-D

APPARATUS REQUIRED :-

i) Prism
ii) Drawing pins
iii) fixing pins
iv) protractor
v) Drawing board

THEORY :-

A prism is an optical element. Its polished that surfaces that reflect light.

→ when light travels from one medium to another medium it is reflected a the same medium at an different angle.

→ The degree of bending of the light path depends on the angle that the incident beam of light makes with the surface of the prism u is the ratio between the refractive index of the two medium, this is called snell's law i.e $u = \frac{\sin i}{\sin r}$

Where (u) is the refractive index of the material of the prism (i) is the angle of incidence (R) is the angle of refraction.

→ The angle of minimum deviation can be obtained from the graph at (a) Le the angle of minimum deviation then the refractive index (u). At the material of the prism is calculated using the formula.

Teacher's Signature

Expt. No. 09 Date 23.06.23

Page No. 33

$$\mu = \frac{\sin\left(\frac{A + D_m}{2}\right)}{\sin A/2}$$

PROCEDURE :-

i) A paper is fixed in the drawing board placed on the table.

ii) place the given glass prism on the paper, using the pencil mark the outline A, B, C of the prism in the paper.

iii) Remove the prism using the scale pencil normal 'NO' is drawn, using the protractor measure an angle 30° the normal.

iv) Another line (incident) is drawn the angle 30° with the normal 'NO'

v) Two pins R_1 and R_2 are fixed on the line, the prism is replaced on the outline. By looking the pins from AC of the prism then other pins R_3 and R_4 fixed that $R_1 R_2 - R_3 - R_4$ are in one line. Remove the pins now extend the the incident line in one line forward direction and the refracted line in the backward direction, they meet at a point let the point be P.

vi) using the protractor measure the angle at the point this is the angle at the point P this is the angle of deviation repeat the experiment for different value.

vii) Repeat the experiment for different angle of incidence. i = 30°, 35°, 40°, 45°, 50°, 55° of the corresponding angle of deviation measured.

Teacher's Signature

Expt. No. 09

Date 23.06.93

Page No. 34

viii) Draw a graph angle of Incidence (i) an angle of deviation along with the 'y' axis.

(ix) The angle of deviation corresponding to the lowest of the curve is the angle of minimum deviation.

(x) Angles of the prism 'A' is directly measured from the outline of the prism using the protractor calculate the refractive unit of the material of the prism using the formula.

OBSERVATION:-

Sl. NO	Angle of Incidence	Angle of deviation	Angle of minimum deviation
1.			
2.			
3.			
4.			
5.			
6.			

$$\mu = \frac{\sin\left(A + \frac{D_m}{2}\right)}{\sin \frac{A}{2}}$$

Teacher's Signature

Date 23.06.23

Expt. No. 09

Page No. 35

RESULT :-

The angle of minimum deviation by I-D is 1.92

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Teacher's Signature

23/06/23

Expt. No. 10 Date 23.06.22

Page No. 36

AIM OF THE EXPERIMENT:

To trace lines of force due to a bar magnet with north pole pointing south and locate the neutral points.

APPARATUS REQUIRED:-

i) Bar magnet
ii) Compass box
iii) Drawing board
iv) Scale
v) pencil
vi) fixing pins.

THEORY:-

A magnetic lines of force is a closed curve that indicates the path along which a unit north pole can move if it force to do so within a magnetic field.

PROPERTIES:-

(i) They always start from the north pole and ends on south pole and continues throughout the body of the magnet
(ii) The tangent at any point on the lines of force gives the direction of magnetic field at that point.
(iii) The no. of lines of force per unit area being perpendicular at P is directly proportional to the magnitude of the strength of the field.

Teacher's Signature

Expt. No. 10 Date 23.06.25 Page No. 37

iv) The two lines of force do not intersect with each other. If it shows at the point of intersection it will give tangens which will show two direct section which is not possible.

v) Neutral points are the points in the region around a magnet where its magnetic field is neutralised by the earth's magnetic field i.e the resultant force is at this point.

Conclusion :-

In the above manner the line of force due to a bar magnet with north pole pilting south and the neutral points are located.

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Teacher's Signature 24/06/25

Expt No. 11 Date 24.02.22 Page No. 28

AIM OF THE EXPERIMENT:

To trace the lines of the force due to a bar magnet with north pole pointing north and locate neutral points.

APPARATUS REQUIRED:-

i) Bar magnet
ii) compass box
iii) Drawing board
iv) Scale
v) pencil
vi) fixing pins

THEORY :-

Magnetic lines of force :

A magnetic lines of force is a closed curve that indicates the path along which a unit north pole free to do so within a magnetic field.

PROPERTIES :-

1) They always start from the north pole and end on south pole and continous throughout the body of the magnet.
2) the tangent at any points on the lines of force gives the direction of magnetic field at that point.
3) the no. of lines of force per unit area (area being perpendicular) ie p is directly proportional to the magnitude of the strength of the field.

Teacher's Signature

Date 27.06.23

Expt. No. 11 Page No. 39

1) The two lines of force do not interest with each other. If it shows at the points of inter section it will give tangents which will show two directions which is not possible.

2) Neutral points in the region around a magnet when its magnetic field is neutralised by the earth's magnetic field i.e. the resultant force is zero at this points.

Conclusion :—

This is the line of force due to a bar magnet with north pole pointing north and the neutral points are located.

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Teacher's Signature 27/06/23