Girls' High School & College, Prayagraj

Physics Practical
Session 2020-2021
Class - IX 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).
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. 1

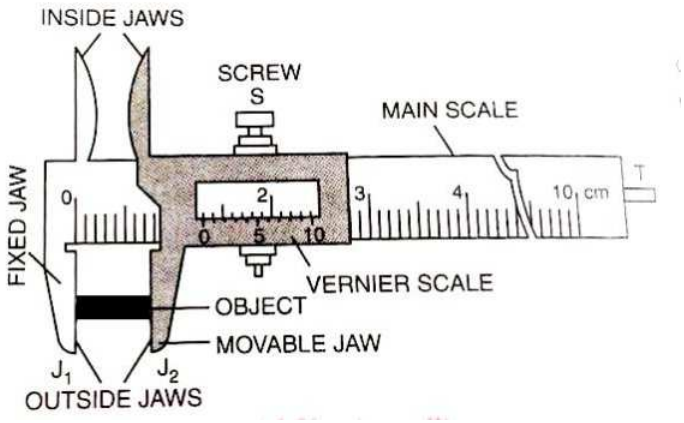
AIM:- To determine the length of the given wooden block with the help of vernier callipers.

APPARATUS REQUIRED:- Vernier callipers and given wooden block.

PRINCIPLE:- n division of vernier scale are equal to (n-1) divisions of main scale.
The least count of vernier is equal to the difference between the values of one main scale division and one vernier scale division. It is also called the **vernier constant.**

Least Count = S – V = S/n, where

S = the value of one small division of main scale.
V= the value of one small division of vernier scale.



OBSERVATIONS:-

Total no. of divisions on vernier scale (n) = ……. cm
Value of one main scale division (x) = ……..
Least count = x/n = ……..cm
Zero error = …….. cm

S.No.	Main scale reading (in cm)	Vernier scale reading	V. S. reading X Least count (in cm)	M. S. reading + (V. S. reading X least count) (in cm)
1.				
2.				
3.				
4.				
			Mean Reading=	

Correct reading = Mean reading $\pm$ Zero error
= ……..
= …… cm

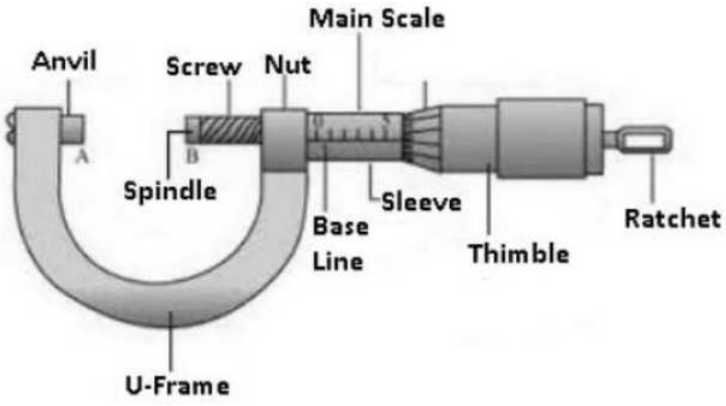
RESULT :- The length of given wooden block is …… cm.

EXPERIMENT NO. 2

AIM:- To determine the diameter of the given common pin by screw gauge.

APPARATUS REQUIRED:- Screw gauge and the given common pin

PRINCIPLE:- Screw gauge works on the principle of screw and nut. On rotating the thimble the screw moves forward through the nut such that "The linear motion is directly proportional to the rotational motion". On giving one complete rotation to the circular scale the screw covers the distance between two successive threads on the screw. This is known as **pitch** of the screw gauge. The linear distance i.e. pitch is read on the main scale which is marked on sleeve cylinder.
Least count= Pitch / Total no. of divisions on the circular scale



OBSERVATIONS:-

Pitch of the screw = …… cm
Total no. of divisions on the circular scale= ……
Least count = Pitch/Total no. of divisions on the circular scale
= ……..cm
Zero error = …….. cm

S.No.	Main scale reading (in cm)	Circular scale reading	C. S. reading X Least count (in cm)	M. S. reading + (C. S. reading X least count) (in cm)
1.				
2.				
3.				
4.				
			Mean Reading=	

Correct reading = Mean reading $\pm$ Zero error
= ……..
= …… cm

RESULT :- The diameter of the given common pin is …… cm.

EXPERIMENT NO. 3

AIM:- To find the acceleration due to gravity with the help of a simple pendulum.

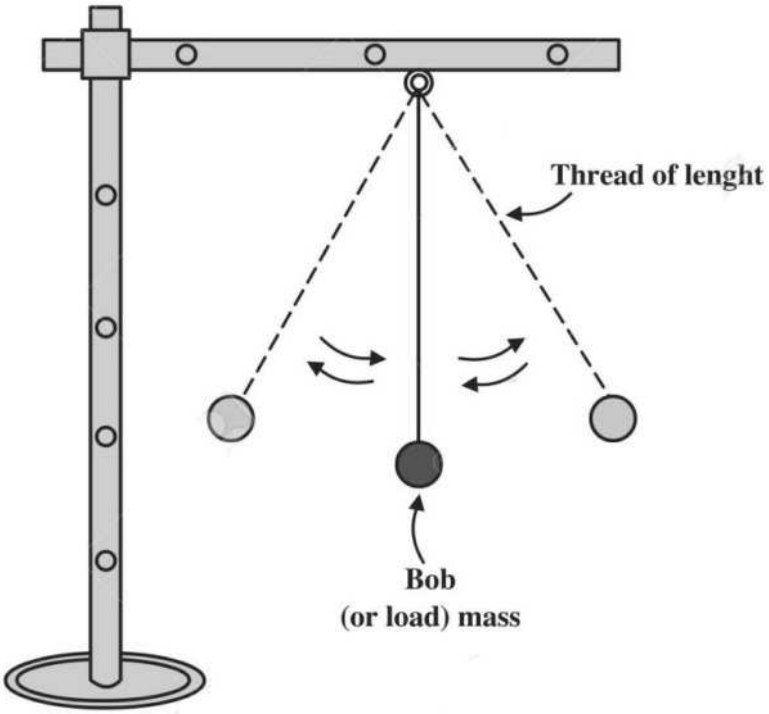
APPARATUS REQUIRED:- A bob, metallic stand with clamp, thread and stop clock.

THEORY:- The time taken by the pendulum to complete one oscillation is called **time period.**

Relation between the time period (T) and the effective length (l) of the pendulum

$$T=2\pi\sqrt{\frac{l}{g}}$$ or

$$g = \frac{4\pi^2}{l/T^2}$$



OBSERVATIONS:-

Least count of the stop clock = …… sec

Diameter of the bob (d) = …… cm

Radius of the bob (r) = …….. cm

S. No.	Length of thread L (in cm)	Effective length of thread (L + r) =l (in cm)	Time taken for 20 oscillations t (in sec)	Time period T = t/20 (sec)	l/T^2 (cm/sec^2)
1.					
2.					
3.					
4.					
				Mean Reading (S)=	

The acceleration due to gravity (g) = $\frac{4\pi^2}{S}$

= …….

=……cm/sec^2

=……m/sec^2

RESULT :- The acceleration due to gravity = ……. m/sec^2.

EXPERIMENT NO. 4

AIM:- To determine the extension in the spring against load.

APPARATUS REQUIRED:- A spring with pan at its end, a half metre scale, a stand with clamp and weight box.

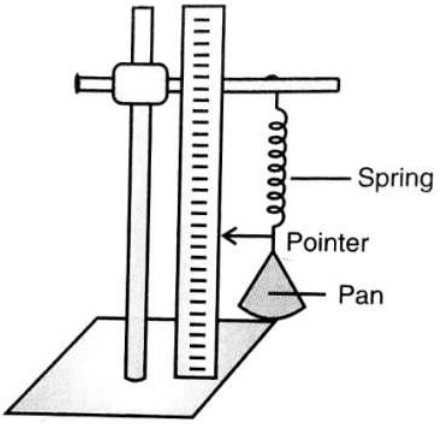
THEORY:-If a spring is stretched, the restoring force (F) applied by the spring to oppose the change in its length is directly proportional to the change in its length (X) i.e.

$F \alpha -X$

$F = -KX$

$mg = -KX$

Thus, if a graph of m is plotted against X, it will be a straight line with slope S = K/g.



OBSERVATIONS:-

Least count of the metre scale =……. cm

S. No.	Weight W in (gf)	Extension x in (cm)
1.	**20**	
2.	**40**	
3.	**60**	
4.	**80**	
5.	**100**	

Graph of x against W is shown on attached graph sheet.

From the graph-

The value of X is ……..cm when W=50 gf.

RESULT :- The value of X from the graph = …… cm.

END