



STEPPING STONE
SCHOOL (HIGH)

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CLASS – IX

PHYSICS

WORKSHEET- 4

Date – 11/05/2020, (Day- 4)

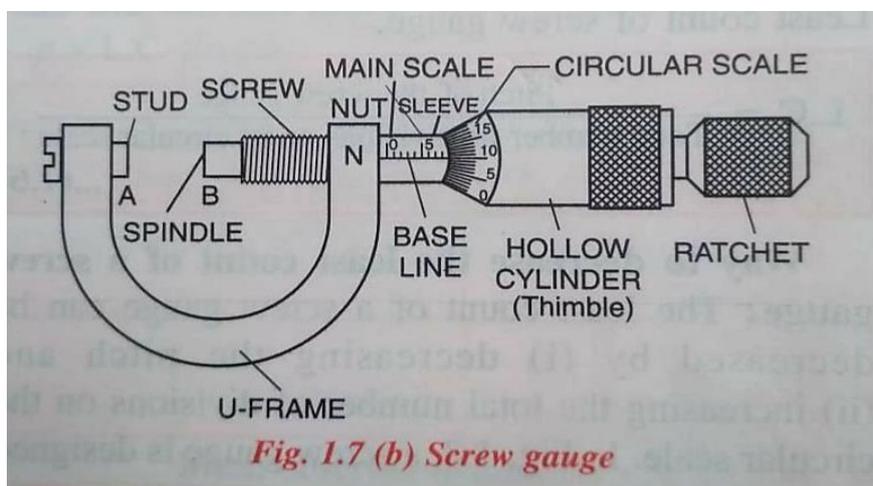
Chapter- MEASUREMENT (IV)

Topic- Screw Gauge

Time limit: 30 minutes.

Please read the notes carefully and on the basis of it copy down the questions and solve them on a sheet of paper date wise. Keep the worksheet ready in a file to be submitted on the opening day.

Diagram:



Principle:

It works on the principle of a screw.

Uses:

It is used to measure the diameter of a wire or thickness of a paper etc.

Main parts and their functions:

Ratchet- to advance the screw by turning it till the object is gently held between stud and spindle

Main scale- to read length correct up to 1mm

Circular scale- to read length correct up to 0.01 mm

Pitch and least count:

Pitch- It is the linear distance moved by its screw on the main scale when the circular scale is given one complete rotation.

Least count:

L.C = Pitch of the screw gauge

Total number of division on
Circular scale

Zero error:

When stud and spindle are kept in contact, if the zero mark of circular scale do not coincide with zero mark of main scale then screw gauge is said to have zero error.

Kinds of zero error:

Positive zero error- when zero mark on circular scale is below the base line of main scale.

Negative zero error- when zero mark on circular scale is above the base line of main scale.

Backlash error:

Due to wear and tear of threads of screw, the tip of the screw does not start moving in the opposite direction at once. This is called Backlash error.

Exercise:

- (1) Explain the terms (a) pitch and (b) least count of a screw gauge. How are they determined?
- (2) How can the least count of a screw gauge be decreased?
- (3) State the purpose of ratchet in a screw gauge.
- (4) What is backlash error? Why is it caused? How is it avoided?
- (5) Describe the procedure to measure the diameter of a wire with the help of screw gauge.
- (6) Name the instrument which has the least count
(a) 0.1 mm (b) 1mm (c) 0.01 mm.
- (7) State one use of screw gauge.
- (8) How is the zero error of screw gauge accounted for?

Please tap on the hyperlink below to watch the video content of the topic screw gauge .

<https://www.youtube.com/watch?v=ceCOvzFwJIs>