

Winmeen Tnpsc Group 1 & 2 Study Materials

Tnpsc Group 2 Complete Syllabus : <https://goo.gl/fNSnMN>

Tnpsc Group 2 Previous Questions : <https://goo.gl/PYqsd7>

Tnpsc Group 2 Model Questions : <https://goo.gl/xQvyTk>

6. Measuring Instruments

1. What is physics?

Physics is the most basic science, which deals with the study of nature and natural phenomena. It is a science of measurement.

2. What is screw gauge?

The Screw Gauge is an instrument to measure the dimensions of very small objects upto 0.01 mm. The Screw Gauge consists of a 'U' shaped metal frame.

3. What is pitch scale?

On the cylinder parallel to the axis of the screw a scale is graduated in millimeter called Pitch Scale.

4. What is head scale?

One end of the screw is attached to a sleeve. The head of the sleeve is divided into 100 divisions called the Head Scale.

5. What is principle of screw gauge?

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The *screw gauge* works under the principle of the screw. When a screw is rotated in a nut, the distance moved by the tip of the screw is directly proportional to the number of rotations.

6. What is pitch of screw?

The pitch of the screw is the distance between two successive screw threads. It is also equal to the distance travelled by the tip of the screw for one complete rotation of the head.

7. What is the least count of screw gauge?

The distance moved by the tip of the screw for a rotation of one division on the head scale is called the least count of the Screw Gauge.

8. What is zero error of screw gauge?

When the plane surface of the screw and the opposite plane stud on the frame are brought into contact, if the zero of the head scale coincides with the pitch scale axis, there is no zero error.

9. What is positive zero error?

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When the plane surface of the screw and the opposite plane stud on the frame are brought into contact, if the zero of the head scale lies below the pitch scale axis, the zero error is positive.

10. What is negative zero error?

When the plane surface of the screw and the opposite plane stud on the frame are brought into contact, if the Zero of the head scale lies above the pitch scale axis, the zero error is negative.

11. How to measure diameter with thin wire?

- Determine the Pitch, the Least Count and the Zero Error of the Screw Gauge.
- Place the wire between the two studs.
- Rotate the head until the wire is held firmly but not tightly, with the help of ratchet.
- Note the reading on the pitch scale crossed by the head scale (PSR) and the head scale division that coincides with the pitch scale axis (H.S.C).
- The diameter of the wire is given by $P.S.R + (H.S.C \times L.C) \pm Z.C$
- Repeat the experiment for different portions of the wire.

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- Tabulate the readings.
- The average of the last column reading

12. How to measure long distance?

For measuring long distances such as distance of the moon or a planet from the earth, special methods are adopted. Radio echo method, laser pulse method and parallax method are used to determine very long distances. Units such as astronomical unit and light year are used to measure distance in space.

13. What is astronomical unit?

Astronomical Unit is the mean distance

of the centre of the sun from the centre of the earth. Astronomical Unit (AU) =
1.496 x 10¹¹m

14. What is light year?

Light year is the distance travelled by light in one year in vacuum. Distance travelled by light in one year in vacuum = Velocity of light x 1 year (in seconds)

= 3 x 10⁸ x 365.25 x 24 x 60 x 60

= 9.467 x 10¹⁵ m

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Therefore , 1 light year = 9.467×10^{15} m

