

## NCERT/CBSE PHYSICS CLASS 11 textbook

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Answers to NCERT/CBSE PHYSICS Class 11(Class XI)textbook Exercise and Additional exercise

CHAPTER TWO

UNITS AND MEASUREMENTS

EXERCISES

(For simplicity in numerical calculations, take  $g = 10 \text{ m s}^{-2}$ )

**2.6** Which of the following is the most precise device for measuring length :

- (a) a vernier callipers with 20 divisions on the sliding scale
- (b) a screw gauge of pitch 1 mm and 100 divisions on the circular scale
- (c) an optical instrument that can measure length to within a wavelength of light ?

(a) Least count of V.C =  $1 \text{ MSD} - 1 \text{ VSD} = 1 \text{ MSD} - \frac{19}{20} \text{ MSD} = \frac{1}{20} \text{ MSD} = 0.005 \text{ cm}$

(b) Least count of screw gauge =  $\frac{\text{pitch}}{\text{no. of divisions on circular scale}} = 0.001 \text{ cm}$

(c) Wavelength of light,  $\lambda \approx 10^{-5} \text{ cm}$

Hence, Least count of optical instrument =  $10^{-5} \text{ cm}$

Clearly, the optical instrument is the most precise one.