

Units and Measurements

NEET previous year questions · Physics

9 questions from the official papers: NEET 2026 (3), Re-NEET 2026 (2), NEET 2020 (4). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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1. NEET 2026 · Q1

The speed of light in vacuum is taken as unity. If light takes 6 min 40 s to reach the Earth from the Sun, the distance between the Sun and the Earth in new unit is:

- (1) 3×10^8 (2) 500
(3) 3×10^{10} (4) 400

Answer (4)

Sol. In the new system the speed of light itself is 1 unit, so distance = speed $\times$ time = $1 \times t$. Converting the time, 6 min 40 s = 360 + 40 = 400 s, giving a distance of 400 new units, so (4) is correct. Options 3×10^8 and 3×10^{10} wrongly re-insert the SI value of c even though c is now unity, and 500 comes from mis-converting the time.

2. NEET 2026 · Q14

Each side of a metallic cube of mass 5.580 kg is measured to be 9.0 cm. Keeping the significant figures in view, the density of the material of the cube can be best expressed as $X \times 10^3 \text{ kg m}^{-3}$ where the value of X is:

- (1) 7.654 (2) 7.6 (3) 7.65 (4) 7.7

Answer (4)

Sol. Density = mass/volume = $\frac{5.580}{(9.0)^3}$ which numerically gives about $7.654 \times 10^3 \text{ kg m}^{-3}$. The side is measured to only two significant figures (9.0 cm), so the final answer must be rounded to two significant figures, giving 7.7×10^3 . Hence $X = 7.7$ (option (4)); the other values retain more significant figures than the data justify.

3. NEET 2026 · Q25

In a vernier calliper, 20 VSD coincide with 16 MSD (each division of length 1 mm). The least count of the vernier callipers is:

- (1) 0.2 cm (2) 0.01 cm (3) 0.02 cm (4) 0.1 cm

Answer (3)

Sol. Least count = 1 main scale division (MSD) - 1 VSD.
Since 20 VSD = 16 MSD, one VSD equals $\frac{16}{20}$ MSD,
so L.C. = $\left(1 - \frac{16}{20}\right) \text{ MSD} = \frac{4}{20} \text{ MSD} = 0.2 \times 1 \text{ mm} = 0.2 \text{ mm} = 0.02 \text{ cm}$ (option (3)). Forgetting to convert millimetres to centimetres gives the distractor 0.2 cm.

4. Re-NEET 2026 · Q26

One main scale division of a Vernier calliper is equal to 1 mm and the number of divisions on the Vernier scale is 10. When both the jaws touch each other, the Vernier scale shifts to the left of zero of the main scale in such a way that 4th Vernier division coincides with a division of the main scale. If this Vernier calliper measures the length of the wire to be 1 cm, the actual length of the wire is :

- (1) 0.60 cm (2) 0.96 cm (3) 1.00 cm (4) 1.06 cm

Answer (4)

Sol. NTA dropped this question because no printed option matched the correct answer; option (4) is corrected here to 1.06 cm. Working: least count = $\frac{1 \text{ MSD}}{N} = \frac{1 \text{ mm}}{10} = 0.1 \text{ mm}$. The Vernier zero lies to the left of the main-scale zero, so the zero error is negative. With the 4th Vernier division coinciding, zero error = $-(N - n) \times LC = -(10 - 4)(0.1) = -0.6 \text{ mm}$. Therefore true length = observed reading - zero error = $10.0 - (-0.6) = 10.6 \text{ mm} = 1.06 \text{ cm}$. NCERT Class 11,

Units and Measurements (least count and instrumental error).

5. Re-NEET 2026 · Q37

Consider that σ_s , k_B , b represents Stefan-Boltzmann constant, Boltzmann constant and Wien's displacement law constant, respectively. The dimension of $\sigma_s k_B^{-1} b$ is

- (1) $[L^{-1}T^{-1}K^{-2}]$ (2) $[L^{-1}K^{-2}]$
 (3) $[L^{-1}T^{-1}K^{-3}]$ (4) $[L^{-1}T^{-1}K^{-4}]$

Answer (1)

Sol. Take each constant from its defining equation.

Stefan's law $E = \sigma_s T^4$ makes σ_s a power per unit area per K^4 , so $[\sigma_s] = [MT^{-3}K^{-4}]$. Boltzmann's constant is an energy per kelvin, $[k_B] = [ML^2T^{-2}K^{-1}]$, and Wien's constant is a wavelength times a temperature, $[b] = [LK]$. Multiplying, $[MT^{-3}K^{-4}][M^{-1}L^{-2}T^2K][LK] = [L^{-1}T^{-1}K^{-2}]$. NCERT Class 11, Units and Measurements; the constants themselves come from Thermal Properties of Matter.

6. NEET 2020 · Q159

Dimensions of stress are

- (1) $[ML^2T^{-2}]$ (2) $[ML^0T^{-2}]$
 (3) $[ML^{-1}T^{-2}]$ (4) $[MLT^{-2}]$

Answer (3)

Sol. Stress is defined as force per unit area, with dimensions $\left[\frac{F}{A}\right] = \left[\frac{MLT^{-2}}{L^2}\right] = [ML^{-1}T^{-2}]$. Chapter: Units and Measurements.

7. NEET 2020 · Q160

The energy required to break one bond in DNA is 10^{-20} J. This value in eV is nearly

- (1) 0.6 (2) 0.06 (3) 0.006 (4) 6

Answer (2)

Sol. To convert joules to electron-volts, use the conversion factor $1 \text{ eV} = 1.6 \times 10^{-19} \text{ J}$. For 10^{-20} J , the energy in eV is $\frac{10^{-20}}{1.6 \times 10^{-19}} \approx 0.06 \text{ eV}$. Chapter: Units and Measurements.

8. NEET 2020 · Q171

Taking into account of the significant figures, what is the value of $9.99 \text{ m} - 0.0099 \text{ m}$?

- (1) 9.98 m (2) 9.980 m
 (3) 9.9 m (4) 9.9801 m

Answer (1)

Sol. Subtracting the values, $9.99 \text{ m} - 0.0099 \text{ m} = 9.9801 \text{ m}$. Considering significant figures, the result should be rounded to three significant figures, giving 9.98 m . Chapter: Units and Measurements.

9. NEET 2020 · Q176

A screw gauge has least count of 0.01 mm and there are 50 divisions in its circular scale. The pitch of the screw gauge is :

- (1) 0.25 mm (2) 0.5 mm (3) 1.0 mm (4) 0.01 mm

Answer (2)

Sol. The least count of a screw gauge is given by $LC = \frac{\text{pitch}}{\text{number of divisions}}$. Given $LC = 0.01 \text{ mm}$ and 50 divisions, $\text{pitch} = LC \times \text{number of divisions} = 0.01 \times 50 = 0.5 \text{ mm}$. Chapter: Units and Measurements.

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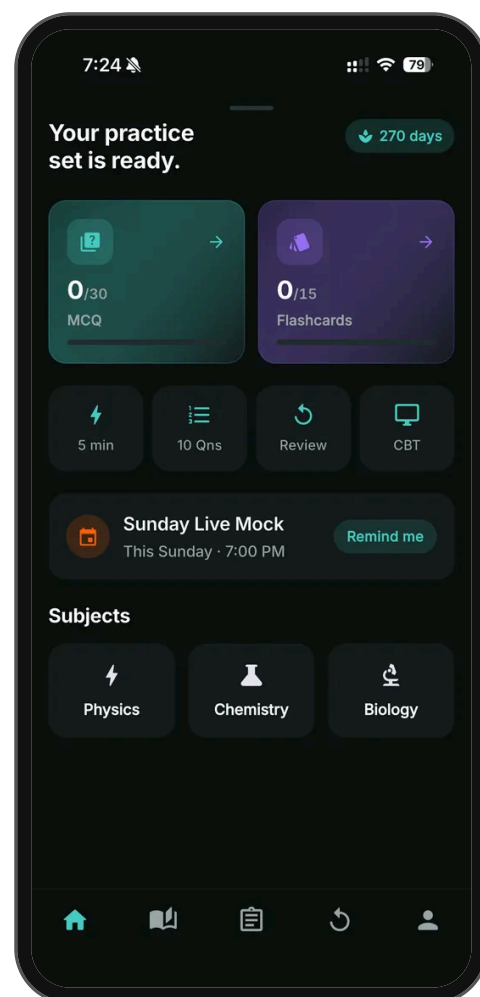
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