

Indicate
the
Assignment

Homework Assignment #1

Indicate
page
number

p.1

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Your name
on
each
page

12.1 Given $T = 2500^\circ\text{C}$ What is the wavelength of maximum emission?

$$\lambda = \frac{a}{T} \quad a = 2.9 \times 10^6 \text{ nm K} \quad (2.9 \text{ mm K p. 271})$$

$$\lambda = \frac{2.9 \times 10^6 \text{ nm K}}{(2500 + 273) \text{ K}} = 1046 \text{ nm} = 1.05 \mu\text{m}$$

$\lambda = 1.05 \mu\text{m}$ peaks in the near-IR

12.3 A glow-worm emits at 650 nm. If a glow-worm is a hot source what is the Temperature? } State the problem

Give
the
formulas
used

$$\lambda = \frac{a}{T} \Rightarrow T = \frac{a}{\lambda}$$

$$T = \frac{2.9 \times 10^6 \text{ nm K}}{650 \text{ nm}} = 4461 \text{ K}$$

$$T = 4500 \text{ K}$$

Show your work
including units

clearly indicate
your answer

A glow worm is not a hot body emitting. The light must be produced by some other mechanism. } include explanation if asked, or desired

Neatness counts. Write clearly, recopy your work if necessary.