

① $\lambda = 5.577 \text{ nm}$

A) $v \Rightarrow v = \frac{c}{\lambda} = \frac{3 \times 10^8 \text{ m/s}}{5.577 \times 10^{-9} \text{ m}}$

$v = 5.38 \times 10^{16} \text{ Hz}$

B) $p = \frac{h}{\lambda} = \frac{6.626 \times 10^{-34} \text{ J.s}}{5.577 \times 10^{-9} \text{ m}}$

$p = 1.19 \times 10^{-25} \text{ J.s/m}$

C) $E = hv = (6.626 \times 10^{-34} \text{ J.s})(5.38 \times 10^{16} \text{ Hz})$

$E = 3.56 \times 10^{-17} \text{ J}$ تحويل إلى eV مقسم على 1.602×10^{-19}

$E = \frac{3.56 \times 10^{-17} \text{ J}}{1.602 \times 10^{-19}} = 222.2 \text{ eV}$

② $v = 4.74 \times 10^{14} \text{ Hz}$ Red color

A) $\lambda = \frac{c}{v} = \frac{3 \times 10^8 \text{ m/s}}{4.74 \times 10^{14} \text{ Hz}} = 6.32 \times 10^{-7} \text{ m}$

B) $p = \frac{h}{\lambda} = \frac{(6.626 \times 10^{-34} \text{ J.s})}{(6.32 \times 10^{-7} \text{ m})} = 1.05 \times 10^{-27} \text{ J.s/m}$

C) $E = hv = (6.626 \times 10^{-34} \text{ J.s})(4.74 \times 10^{14} \text{ Hz})$
 $E = 3.14 \times 10^{-19} \text{ J} = 1.96 \text{ eV}$