P #10

Ch 28 - pg 895

a) $E_6 = \frac{-13.6\,eV}{6^2} = -.38\,eV$

$E_2 = \frac{-13.6\,eV}{2^2} = -3.4\,eV$

$\Delta E = (-3.4\,eV) - (-.38\,eV)$

$\boxed{\Delta E = 3.02\,eV}$

b) $\Delta E = 3.02\,eV$
$hc = 1240\,eV \cdot nm$

$E = \frac{h \cdot c}{\lambda}$ $\qquad 3.02\,eV = \frac{1240\,eV \cdot nm}{\lambda}$

$\boxed{\lambda = 410\,nm}$

c) $\Delta E = 3.02\,eV$
$h = 4.14 \times 10^{-15}\,eV \cdot s$

$E = h \cdot f$

$(3.02\,eV) = (4.14 \times 10^{-15}\,eV \cdot s) \cdot f$

$\boxed{f = 7.29 \times 10^{14}\,Hz}$