

IB/AP

2. b) i $1.4 \times 10^{-16} \text{ J}$
 ii $1.6 \times 10^{-23} \text{ N s}$
 iii $4.1 \times 10^{-11} \text{ m}$

3. d) $6.6 \times 10^{-34} \text{ J}\cdot\text{s}$

4. a) - Radiation is only emitted when atom makes a transition from higher to a lower energy state
 - Difference in energy states $\Delta E = hf$

b $E_1 = -13.6 \text{ eV}$

$r_1 = 0.0529 \text{ m}$

$v_1 = 2.19 \times 10^6 \frac{\text{m}}{\text{s}}$

c) $2.2 \times 10^6 \text{ m/s}$

AP

a) diagram

d) $4.18 \times 10^{-19} \text{ J}$

b 248 nm

620 nm

413 nm

a) $7.5 \times 10^{14} \text{ Hz}$

b $\phi = 3.9 \times 10^{-19} \text{ J}$

c) $\boxed{KE = eV_s}$ $V_s = 0.69 \text{ V}$
In Joules

d) $4.5 \times 10^{-25} \text{ kg} \cdot \text{m/s}$

a) $3.3 \times 10^{-19} \text{ J}$ or 2.1 eV

b) $\phi 4.7 \times 10^{-19} \text{ J}$ or 2.9 eV

C diagram