Photoelectric effect

Measure the voltage and current of photovoltaic cells

Red (high voltage) (630.9nm)

V(V)	I(μ A)	

Red light (low voltage) (630.9nm)

V(V)	I(μ A)	

Yellow light (592.0nm)

V(V)	I(μ A)	

Green light (527.3nm)

V(V)	I(μ A)	

- 1. Describe the relationship between light intensity and the peak current:
- 2. According to the data, plot the graphs of voltage against current and find the stopping voltage V_s of each light:

red light: ______, yellow light: ______, green light: ______

3. Given the equation of Photoelectric effect h ν = V_se+W , find the working function W.

Planck's constant h = $6.626 \times 10^{-34} m^2 kg$ / s, Optical frequency ν , Electron charge e = $1.9 \times 10^{-19} C$.

4. Plot a graph of stopping voltage $\,V_{\!s}\,$ against optical frequency ν , and find the value of h/e.