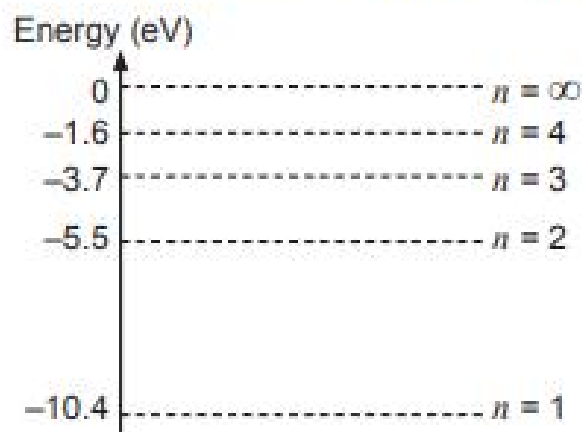


**Question 6****(4 marks)**

Some of the electron energy levels for atomic mercury are shown in the following diagram.



Indicate which one of the following transitions is the most energetic by circling it.

$$n = 4 \text{ to } n = 3$$

$$n = 2 \text{ to } n = 1$$

$$n = 4 \text{ to } n = 1$$

Determine the frequency and wavelength of the light emitted when the atom makes the most energetic of the above transitions.