

## First-Year SL Chemistry

### **3. Atomic Theory: Electronic structure**

#### **Solutions to Further problems :**

1. Emission spectrum of hydrogen is composed of separate lines and not a continuous spectrum because the source of the light. The source is electronic transition between fixed (quantized) energy levels. Since the energy levels are fixed, energy given off from a higher energy levels to lower one is also fixed; that is only certain energies, only certain photons of light is given off represented in a spectrum by individual lines of light (of a certain energy).
2.  $n = 2 \rightarrow n = 1$  because the energy difference between successive energy levels decreases moving outward from the nucleus.
3. The line corresponding to  $n = 4 \rightarrow n = 2$ .
4. 2, 8 and 8.
5. (a) 2, (b) 2.8.5, (c) 2.7, (d) 2.8.2, (e) 2.8.6, (f) 2.8.8, (g) 2.8, (h) 2,8.