

### 5.4 EXERCISE 1 – Transition Metals

1. Give the electronic configuration of the following atoms:
  - a) V
  - b) Cr
  - c) Co
  - d) Cu
  - e) Zn
2. Give the electronic configuration of the following ions:
  - a)  $\text{Co}^{2+}$
  - b)  $\text{Cu}^{+}$
  - c)  $\text{V}^{3+}$
  - d)  $\text{Cr}^{3+}$
  - e)  $\text{Fe}^{3+}$
3.
  - a) Explain why Sc and Zn are not classified as transition metals
  - b) Explain how transition metals can form complex ions
  - d) Explain why complex ions are often coloured
  - e) Explain why  $\text{Cu}^{+}$  is not coloured
4. Explain how the colour of solutions containing transition metals can be used to determine their concentration.