

## Chemguide – answers

### ELECTRONIC STRUCTURES OF ATOMS

- $1s^2 2s^2 2p_x^1$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^2 3p_x^2 3p_y^2 3p_z^1$
  - $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$
  - $1s^2$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^2 3p_x^1 3p_y^1$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^2 3p_x^2 3p_y^2 3p_z^2 4s^1$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^1$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^2 3p_x^1$
  - $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2 3s^2 3p_x^2 3p_y^1 3p_z^1$
  - $1s^2 2s^2 2p_x^2 2p_y^1 2p_z^1$
- $[\text{Ar}] 3d^2 4s^2$
  - $[\text{Ar}] 3d^7 4s^2$
  - $[\text{Ar}] 3d^5 4s^1$  (There's no short-cut to this – you just have to remember it as an oddity!)
  - $[\text{Ar}] 3d^8 4s^2$
  - $[\text{Ar}] 3d^{10} 4s^1$  (You just have to remember this as well.)
- $6s^1$
  - $5s^2 5p_x^1 5p_y^1$
  - $6s^2 6p_x^2 6p_y^2 6p_z^1$
  - $5s^2 5p_x^2 5p_y^1 5p_z^1$
  - $7s^2$
  - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^{10} 5s^2 5p^6 6s^2$
- Sb. Either count the electrons or, more quickly, notice that it is in the 5<sup>th</sup> period because its outer electrons are in the 5 level, and there are 5 outer electrons so that it is in group 5.
  - Se. By similar reasoning.