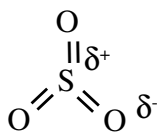
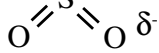
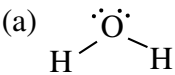


Year 12 Chemistry
Elemental Chemistry
Practice Test

- 1.
- (a) $1s^2 2s^2 2p^6 3s^2 3p^4$
- (b) 
- (c) 
- (d) The bond dipoles do not share a common direction, so they cancel out.
- (e) +6
- (f) +2, +4
- (g) Sulfur can share 2 of its $3p^4$ electrons (for +2), all of $3p^4$ (for +4), or all of $3s^2 3p^4$ (for +6)
- (h) $1s^2 2s^2 2p^6 3s^2 3p^6$
- (i) $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$
- 2.
- (a) 
- (b) V-shaped
- (c) Water molecules interact through hydrogen bonding. This is the strongest secondary force but is much weaker than the primary covalent bonding holding silicon dioxide together (it is a covalent network). Stronger bonding leads to higher melting point.
- (d) $\text{SiO}_2 + 2\text{OH}^- \rightarrow \text{SiO}_3^{2-} + \text{H}_2\text{O}$
- (e) High
- 3.
- (a) $\text{Cr}_2\text{O}_3 + 6\text{H}^+ \rightarrow 2\text{Cr}^{3+} + 3\text{H}_2\text{O}$
- (b) Basic
- (c) Metal
- (a) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$
- (b) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3$
- (d) d