

Exercises 6

Exercise 6.1

Give the Lewis formulas of the following molecules and ions and indicate the oxidation numbers of the atoms.

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|--------------------|----------------------------------|----------------------------------|----------------------------------|
| a) CH ₄ | b) C ₂ H ₆ | c) C ₂ H ₄ | d) C ₂ H ₂ |
| e) CO | f) PCl ₃ | g) SeO | h) CO ₃ ²⁻ |
| i) NaOH | j) CaO | k) PCl ₅ | l) NO ⁺ |
| m) O ₂ | n) O ₂ ²⁻ | o) NO | p) CaCO ₃ |

Exercise 6.2

In general, which is more easily polarizable, an anion or a cation?

Exercise 6.3

Without looking up the electronegativities, but based on the trends of the periodic table, which atom(s) attract electrons the most in the following molecules: CO₂, NO, LiH, HCl, BF₃.

Exercise 6.4

What type of bond do you expect for the following substances: 1) NaBr, 2) P₄, 3) SiO₂ and 4) CaCl₂?

Exercise 6.5

What type of bond do you expect in an alloy of titanium and zinc?

Exercise 6.6

Which of the following molecules and ions are radicals? Nitric oxide NO, dioxygen O₂, ammonia NH₃, peroxyxynitrite ONOO⁻, lime CaO and superoxide ion O₂⁻.