

MiniQuiz 2

Chem 111, Section 2 (Martin, 10:10am)

Fall 1998

- (2 points) In the compound Na_2SO_4 , what is the oxidation number of S?
(a) +6 (b) +5 (c) +4 (d) +7 (e) +8
- (2 points) Which one of the following is an oxidation-reduction reaction? Note that none is a balanced reaction, but you should *not* need to balance them.
(a) $\text{Fe}(\text{OH})_3 + \text{HNO}_3 \rightarrow \text{Fe}(\text{NO}_3)_3 + \text{H}_2\text{O}$
(b) $\text{FeCl}_2 + (\text{NH}_4)_2\text{S} \rightarrow \text{FeS} + \text{NH}_4\text{Cl}$
(c) $\text{Fe}(\text{OH})_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{FeCO}_3 + \text{NaOH}$
(d) $\text{Fe}(\text{NO}_3)_3 + \text{H}^+ \rightarrow \text{Fe}(\text{NO}_3)_2 + \text{HNO}_2$
(e) none of the above is an oxidation-reduction reaction

For each statement below (1 point each), indicate whether the statement is most likely true (A) or most likely false (B). These are "ball park" questions - you do not need a calculator. Pay attention to wording.

- In order to vaporize 1 g of H_2O , we need about 4.2 Joules of energy.
(a) True (b) False
- One mole of water vapor (steam) has a lower potential energy than one mole of water solid (ice).
(a) True (b) False
- If heat is added to a system at constant pressure, the process is exothermic.
(a) True (b) False
- If work is done on a system, the system's energy increases.
(a) True (b) False
- Units for specific heat can be expressed both as $\text{J} / (\text{g K})$ and as $\text{kg m}^2 / \text{s}^2$.
(a) True (b) False
- To heat the water in a bathtub from 5°C to 25°C would require about 1000 calories.
(a) True (b) False
- Extra credit. Think carefully!** A car traveling at 61 miles per hour has more potential energy than a baseball traveling at 60 miles per hour.
(a) True (b) False

Place the number **2** in column **K** of your OpScan sheet. This is essential!