Chemistry 236 -- Practice Quiz 3

September 24, 2003 — Bomb Calorimetry

1. If 1.0 gal of gasoline powers a car for 35 miles, then driving under the same conditions, 5.0 gal should power the same car for

   a. 7 miles b. 35 miles c. 175 miles d. 350 miles e. none of these

2. Suppose that 1.0 gal of gasoline powers a car for 30 miles. A second fuel has an combustion energy content 50% greater than that of gasoline. How many gal of this second fuel would be needed to power the car for 180 miles, driving under the same conditions?

   a. 1.0 gal b. 4.0 gal c. 6.0 gal d. 9.0 gal e. none of these

3. Still comparing these two fuels, if 1.00 g of gasoline raises the temperature of 1.00 kg of water by 2.00 K, by how much would 0.80 g of the second fuel raise the temperature of 2.00 kg of water?

   a. 0.50 K b. 1.20 K c. 2.40 K d. 3.00 K e. none of these

4. Calculate Δn_g for the combustion of 1.00 mol of *n*-propanol (C_3H_7OH) to produce $CO_2(g)$ and $H_2O(\ell)$.

   a. 0.0 mol b. 1.0 mol c. 1.5 mol d. 2.5 mol e. none of these

5. The heat exchanged with the surroundings in a process carried out at constant pressure is

   a. w b. ΔH c. ΔE d. $C_P \Delta T$ e. none of these