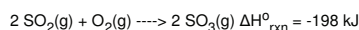


## Self Assessment A

[edit this page](#)This assignment is due on January 27 2012, 12:45 PM [EST](#).**Question 1**

An exothermic reaction causes the surroundings to:

- A) become basic  
 B) decrease in temperature  
 C) condense  
 D) increase in temperature  
 E) decrease in pressure

**Question 2**How much heat is evolved when 320 g of SO<sub>2</sub> is burned according to the chemical equation shown below?

- A) 5.04 x 10<sup>-2</sup> kJ  
 B) 9.9 x 10<sup>2</sup> kJ  
 C) 207 kJ  
 D) 5.0 x 10<sup>2</sup> kJ  
 E) None of the above

**Question 3**

The specific heat of aluminum is 0.214 cal/g·°C. Determine the energy, in calories, necessary to raise the temperature of a 55.5 g piece of aluminum from 23.0 to 48.6°C.

- A) 109 cal  
 B) 273 cal  
 C) 577 cal  
 D) 347 cal  
 E) 304 cal

**Question 4**

A 60.0 g sample of an alloy was heated to 96.00°C and then dropped into a beaker containing 87.0 g of water at a temperature of 24.10°C. The temperature of the water rose to a final temperature of 27.63°C. The specific heat of water is 4.184 J/g·°C. What is the specific heat of the alloy?

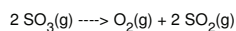
- A) 0.313 J/g·°C  
 B) 2.16 J/g·°C  
 C) 0.118 J/g·°C  
 D) 1.72 J/g·°C  
 E) None of the above

**Question 5**When 1.535 g of methanol (CH<sub>3</sub>OH) was burned in a constant-volume bomb calorimeter, the water temperature rose from 20.27°C to 26.87°C. If the mass of water surrounding the calorimeter was exactly 1000 g and the heat capacity of the bomb calorimeter was 1.75 kJ/°C, calculate the molar heat of combustion of CH<sub>3</sub>OH. The specific heat of water is 4.184 J/g·°C.

- A) -8.17 x 10<sup>5</sup> kJ/mol  
 B) -817 kJ/mol  
 C) 1.88 kJ/mol  
 D) 817 kJ/mol  
 E) None of the above

**Question 6**To which one of the following reactions, occurring at 25°C, does the symbol ΔH<sub>f</sub><sup>°</sup> [H<sub>2</sub>SO<sub>4</sub>(l)] refer?

- A) H<sub>2</sub>(g) + S(s) + 2 O<sub>2</sub>(g) → H<sub>2</sub>SO<sub>4</sub>(l)  
 B) H<sub>2</sub>SO<sub>4</sub>(l) → H<sub>2</sub>(g) + S(s) + 2 O<sub>2</sub>(g)  
 C) H<sub>2</sub>(g) + S(g) + 2 O<sub>2</sub>(g) → H<sub>2</sub>SO<sub>4</sub>(l)  
 D) H<sub>2</sub>SO<sub>4</sub>(l) → 2 H(g) + S(s) + 4 O(g)  
 E) 2 H(g) + S(g) + 4 O(g) → H<sub>2</sub>SO<sub>4</sub>(l)

**Question 7**Given: SO<sub>2</sub>(g) + ½O<sub>2</sub>(g) → SO<sub>3</sub>(g) ΔH<sub>rxn</sub><sup>°</sup> = -99 kJ, what is the enthalpy change for the following reaction?

- A) 99 kJ  
 B) -99 kJ  
 C) 49.5 kJ  
 D) -198 kJ  
 E) 198 kJ