

Self Assessment B

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This assignment is due on January 27 2012, 12:45 PM [EST](#).

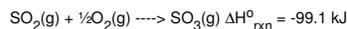
Question 1

An endothermic process

- A) raises the temperature of one gram of a substance by one degree Celcius.
- B) takes in heat from the surroundings.
- C) increases the acidity of the surroundings.
- D) gives off heat to the surroundings.
- E) releases carbon dioxide into the surroundings.

Question 2

The chemical equation describing the conversion of SO₂ into SO₃ is shown below. Calculate ΔH° when 89.6 g of SO₂ is converted into SO₃.



- A) -69.3 kJ
- B) -139 kJ
- C) 69.3 kJ
- D) 139 kJ
- E) -111 kJ

Question 3

How much energy in calories is required to heat 25.0 g of platinum (specific heat capacity = 0.032 cal/g.K) from 24.5 °C to 75.0 °C?

- A) 48 cal
- B) 20. cal
- C) 80 cal
- D) 40. cal
- E) None of the above.

Question 4

If a substance has a specific heat capacity of 1.0 J/g·°C and a density of 2.0 g/mL, how much energy would be required to raise the temperature of 100 mL of the substance from 25 to 45 °C?

- A) 0.20 kJ
- B) 2.0 kJ
- C) 4 kJ
- D) 8 kJ

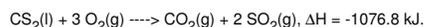
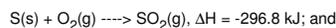
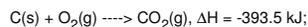
Question 5

A 0.468-g sample of pentane (C₅H₁₂) was burned in a bomb calorimeter. The temperature of the calorimeter and the 1.00 kg of water rose from 20.45 to 23.65 °C. The specific heat capacity of the calorimeter is 2.21 kJ/°C, and the specific heat capacity of water is 4.184 J/g·°C. What is the heat of combustion of one mole of C₅H₁₂?

- A) -7.07 x 10³ kJ/mol
- B) -2.05 kJ/mol
- C) -3.16 x 10³kJ/mol
- D) 1.34 x 10⁴ kJ/mol
- E) 3.16 x 10³ kJ/mol

Question 6

Calculate the standard heat of formation of carbon disulfide (CS₂) from its elements, C(s) + 2 S(s) → CS₂(l), given that:



- A) -1767.1 kJ
- B) -386.5 kJ
- C) 89.7 kJ
- D) 386.5 kJ
- E) None of the above

Question 7

For which of the substances below is ΔH_f° = 0?

- A) O₂(g)
- B) N₂(l)
- C) Na(g)