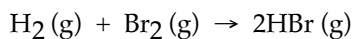


Name _____

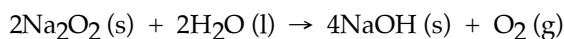
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) For a given process at constant pressure, ΔH is negative. This means that the process is _____.
A) exothermic
B) equithermic
C) energy
D) endothermic
E) a state function

- 2) The value of ΔH° for the reaction below is -72 kJ . How many kJ of heat are released when 1.0 mol of HBr is formed in this reaction?

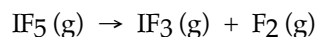


- A) 144 B) -72 C) 36 D) 72 E) 0.44
- 3) The value of ΔH° for the reaction below is -126 kJ . The amount of heat that is released by the reaction of 25.0 g of Na_2O_2 with water is _____ kJ.

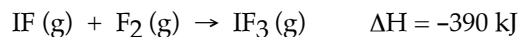


- A) -126 B) 40.4 C) 67.5 D) 80.8 E) 20.2
- 4) A sample of aluminum metal absorbs 9.86 J of heat, upon which the temperature of the sample increases from 23.2°C to 30.5°C . Since the specific heat capacity of aluminum is $0.90 \text{ J/g}\cdot\text{K}$, the mass of the sample is _____ g.
- A) 72 B) 8.1 C) 1.5 D) 65 E) 6.6

- 5) ΔH for the reaction



is _____ kJ, give the data below.



- A) -1135 B) $+35$ C) $+1135$ D) -35 E) $+355$

Answer Key

Testname: QUIZ_HESS_CALORIMETRY_CH_06.TST

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

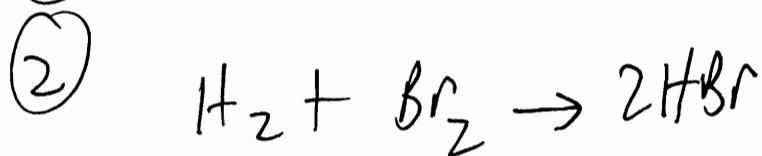
- 1) A
ID: chem9b 5.1-30
- 2) C
ID: chem9b 5.1-34
- 3) E
ID: chem9b 5.1-36
- 4) C
ID: chem9b 5.1-53
- 5) E
ID: chem9b 5.1-62

A.P. Chemistry Quiz:

Hess's Law and Calorimetry

version A

① exothermic



$$1.0 \text{ mol HBr} \times \frac{-72 \text{ kJ}}{2 \text{ mol HBr}} = -36 \text{ kJ}$$

③

$\Delta H^\circ = -36 \text{ kJ}$, thus 36 kJ of heat is released

③ $25.0 \text{ g Na}_2\text{O}_2 \times \frac{1 \text{ mol Na}_2\text{O}_2}{78.0 \text{ g Na}_2\text{O}_2} \times \frac{-126 \text{ kJ}}{2 \text{ mol Na}_2\text{O}_2} = -20.2 \text{ kJ}$

$$\begin{array}{r} 23 \\ 23 \\ 16 \\ 16 \\ \hline 78 \text{ g/mol} \end{array}$$

$\Delta H^\circ = -20.2 \text{ kJ}$; 20.2 kJ of heat is released ④

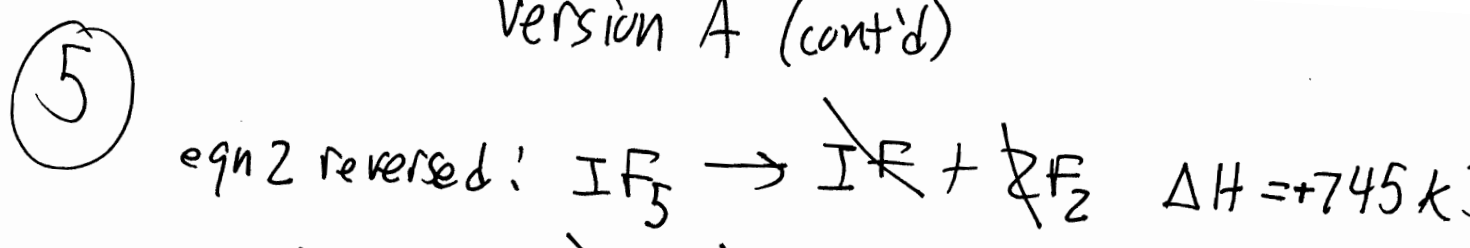
④ $q = +9.86 \text{ J}$
 $\Delta T = T_f - T_i = 30.5 - 23.2 = 7.3^\circ\text{C} = 7.3 \text{ K}$
 $C = \frac{0.90 \text{ J}}{\text{g K}}$

$$q = MC\Delta T \Rightarrow M = \frac{q}{C\Delta T} = \frac{9.86 \text{ J}}{\left(\frac{0.90 \text{ J}}{\text{g K}}\right)(7.3 \text{ K})} = 1.50 \text{ g}$$

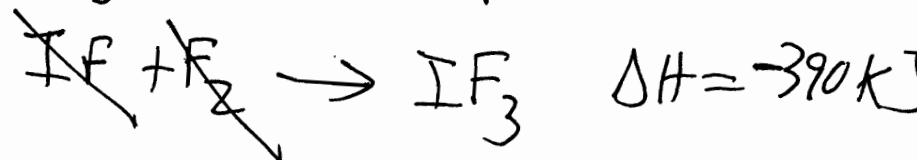
⑤
= 1.5 g

version A (cont'd)

5



+ eqn 1:



E