

Name _____ Period _____

Honors Chemistry
Thermodynamics Practice Test

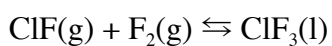
Form P

Part I: Define the following twelve terms.

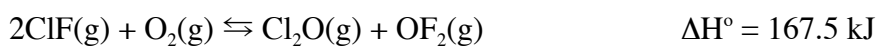
1. Temperature
2. Heat
3. calorie
4. Calorie
5. First law of Thermodynamics
6. Second law of Thermodynamics
7. Zeroth law of Thermodynamics
8. system
9. surroundings
10. enthalpy
11. entropy
12. open system

Part II: Numerical calculations.

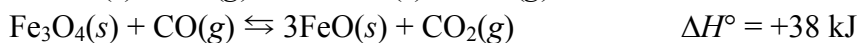
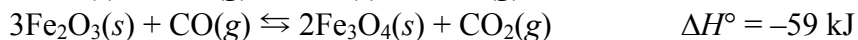
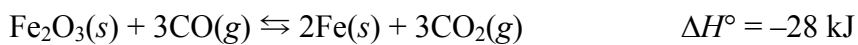
1. Use Hess' Law to calculate the heat of reaction for:



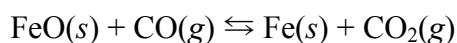
From:



2. Given the following data:



Calculate ΔH° for the reaction



Heat Capacities for common materials:

Substance	Specific Heat	Substance	Specific Heat
H ₂ O (s)	2.06 J/g °C	Aluminum (s)	0.900 J/g °C
H ₂ O (g)	2.02 J/g °C	Benzene (l)	1.74 J/g °C
H ₂ O (l)	4.18 J/g °C	Ethanol (l)	2.42 J/g °C

Phase Change Data

Substance	Heats of Fusion	Heats of Vaporization	Boiling Points	Melting Points
H ₂ O	333.5 J/g	2258 J/g	373.2 K	273.2 K
Benzene	135.5 J/g	394 J/g	353.2 K	278.6 K
Ethanol	99.8 J/g	944 J/g	351.5 K	158.7 K
Acetone	98.5 J/g	500.9 J/g	329.4 K	179 K

5. You have a sample of H₂O with a mass of 200.0 g at a temperature of -50.0 °C. How many joules of heat energy are necessary to:

A) heat the ice to 0°C?

B) melt the ice?

C) heat the water from 0°C to 100°C?

D) boil the water?

E) heat the steam from 100°C to 110°C?