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Thermochemistry Answer Sheet: 12-19-14

1) Specific heat is the measure of energy needed to raise 1 g of a material by 1°C.

2) exothermic reaction

3) a. scientific unit for energy

b. energy needed to increase 1 g of H_2O by 1°C

4) a. solid

b. heat of fusion

c. liquid

d. heat of vaporization

e. gas

5) The heat of fusion is the energy required to change from a solid to liquid and vice-versa. The heat of vaporization is the energy required to change from a liquid to gas and vice-versa.

6) The law that states that energy can neither be created nor destroyed.

7) No; heat is the energy transferred from one object to another while temperature is the measure of the average kinetic energy of particles in matter.

8) $\frac{q=m\Delta T c}{m\Delta T} \quad \frac{}{m\Delta T} \quad c = q/m\Delta T$

$c = 435\,J / 3.4\,g \times 64^\circ C$

$1.99\ J/g^\circ C \ (2.05\ J/g^\circ C)$

9) $14.2\,g \times 155^\circ C \times 4.18\ J/g^\circ C = 9200\ J$

$\frac{14.2\,g}{1} / \frac{1\,mol}{18\,g} = 0.79\,mol$

$6.01 \times 0.79 = 4.74\ KJ$

$40.7 \times 0.79 = 32.1\ KJ$

$46,047\ J$

10) $q = m\Delta T c$

$q = 150\,g \times 12.4 \times 4.18 =$

$7774.8\ J$

$-7774.8\ J / 50\,g \times -99.8$

$1.56\ J/g^\circ C$