

Ch. 6 Fix it Correct work

$$a) q_{H_2O} = 100 \text{ mL} \cdot 4.18 \text{ J/g}^\circ\text{C} \cdot (25.6 - 22.3)$$

$$q_{H_2O} = 1379.4$$

$$q_{rxn} = -1379.4 = -1.38 \text{ kJ}$$

$$b) \Delta H = \frac{q}{n} = \frac{-1379.4 \text{ J}}{0.0125 \text{ mol}} = -110. \frac{\text{kJ}}{\text{mol}}$$

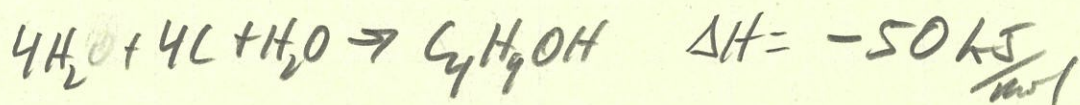
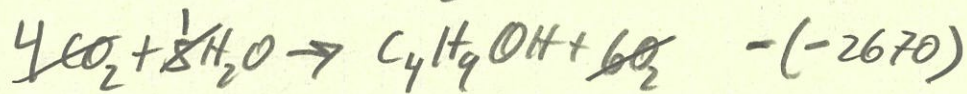
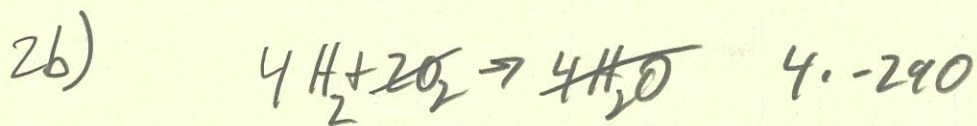
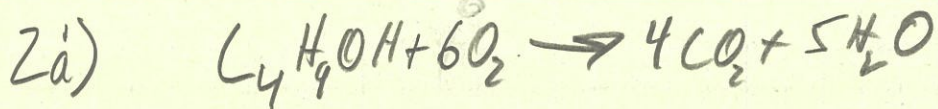
$$.0500 \text{ L} \cdot 0.250 \text{ M} = 0.0125 \text{ mol of each ion}$$

$$c) q_{H_2O} = 80 \cdot 4.18 \text{ J} \cdot (30.5 - 22.0)$$

$$q = 2508 \text{ J}$$

$$2508 \text{ J} \cdot \frac{1 \text{ mol}}{110,000 \text{ J}} = 0.0228 \text{ mol}$$

$$\frac{0.0228 \text{ mol}}{0.0400 \text{ L}} = 0.570 \text{ M solutions}$$



$$2c) \quad 5.0g \ C_4H_9OH \cdot \frac{1mol}{74.12g} \cdot \frac{2670kJ}{1mol} = 180 kJ$$

$$2d) \quad 180 kJ$$

$$180 \cdot 10^3 = 1500g \cdot 4.18 \cdot \Delta T$$

$$\Delta T = 28.7^\circ C$$