Lecture 17 Problems

Problem 1

(a): $37°C \rightarrow 310.15\ K \approx 310\ K$

$\Delta G^{\circ}_{(1)} = -7.03\ kcal/mol - 310 \cdot -1.58\ cal/mol$

I would choose (2) since it has a more spontaneous reaction.

(b): (2) is always spontaneous, (1) is spontaneous up to

$0 = -7030\ cal/mol - T \cdot -1.58\ cal/mol\,K$

$T = \frac{7030}{1.58}\ K \approx 4450\ K$

Problem 2

(i): (a): Stable

(b): Stable

(c): Unstable

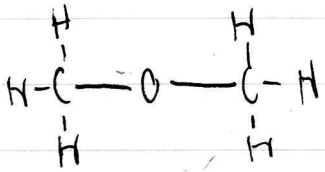
(ii): (a): Less

(b): Less

(c): more

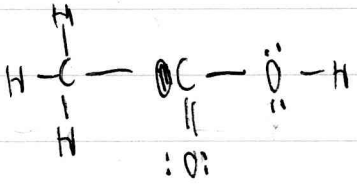
Problem 3

(a):



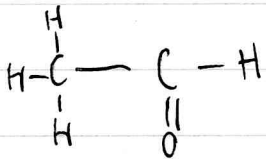
(i): No
(ii): Yes

(b):



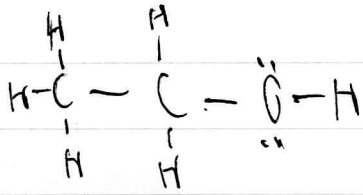
(i): Yes
(ii): Yes

(c):



(i): No
(ii): Yes

(d):



(i): Yes
(i): Yes