EVE 403 Atmospheric Chemistry Homework #4 Spring 2020

Due: 14 February, 2020

In the reaction systems shown below, verify that that each channel passes the Lewis dot and Redox tests. Then, use thermodynamic calculations to determine which reaction in each system is energetically favorable.

- (a) $4O_3 + 3CH_4 \rightarrow 3CO_2 + 6H_2O$ $O_3 + CH_4 \rightarrow CO + 2H_2O$
- (b) $N_2 + 4O_3 \rightarrow 6NO_2$ $3N_2 + O_3 \rightarrow 3N_2O$
- (c) $CO_2 + H_2 \rightarrow CO + H_2O$ $CO_2 + H_2 \rightarrow HCHO + O$
- (d) $3O_3 + C_3H_6 \rightarrow 3CO_2 + 3H_2O_3O_3 + C_3H_6 \rightarrow 3CO + 3H_2O_2$