

half reaction for $C_5H_7O_2N$

need some knowledge of product and reactants anticipated

approach

- assume that N comes from NH_3 , balance

- balance C with CO_2

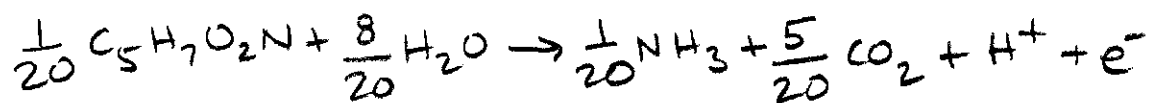
O_2 with H_2O

H with H^+

charge with e^-



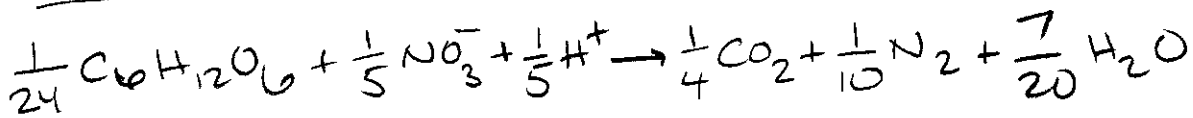
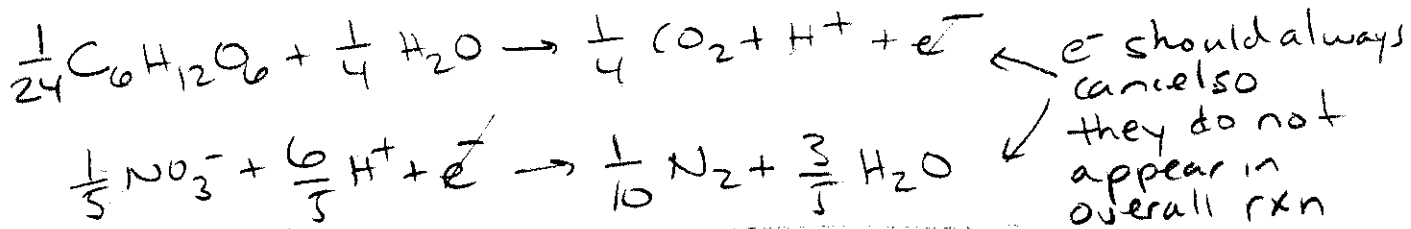
divide by 20 to normalize to $1e^-$ eq



looks very similar to eqn in table 2.4
except for ammonia species and inorganic
carbon species selected

Add two half-reactions (donor + acceptor)

Denitrification with glucose using equations from Table 2.3 and 2.4



using the eqns from Table 2.2 - 2.4 allows us to easily calculate free energy for the overall reactions by just adding the values for each half rxn

$$\Delta G_r^{\circ'} = (-41.35) + (-72.20) \frac{kJ}{e^- \cdot eq} = 113.55 \frac{kJ}{e^- \cdot eq}$$

↑
note: this is the free energy of rxn using std. conditions except for pH which is 7
(more next week on this)

↑
note we use - the value in table since we reversed the reaction as written in the table