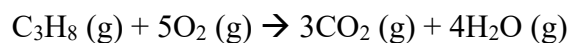


Exam 3 Prep

1. Use the following information to answer the questions below:

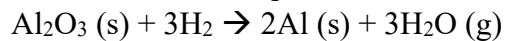


Compound	ΔH_f (kJ/mol)
$\text{C}_3\text{H}_8 (\text{g})$	-393.5
$\text{O}_2 (\text{g})$	0
$\text{CO}_2 (\text{g})$	-241.8
$\text{H}_2\text{O} (\text{g})$	-103.8

Calculate the change in enthalpy:

Is the reaction endothermic or exothermic?

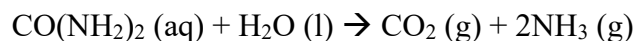
2. Use the following information to answer the question below:



Compound	S (J/mol-K)
Al	28.32
Al_2O_3	51.00
H_2O	188.8
H_2	130.58

Calculate the standard entropy change:

3. Use the following information to calculate the Gibbs free energy and determine whether the reaction is spontaneous:



$$\Delta H = 119 \text{ kJ}$$

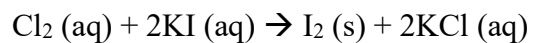
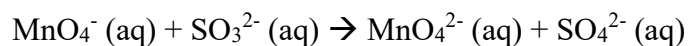
$$\Delta S = 354.8 \text{ J/K}$$

$$T = 25 \text{ C}$$

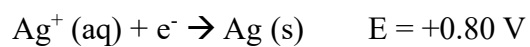
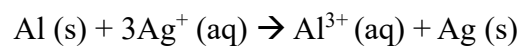
Calculate ΔG :

Is the reaction spontaneous?

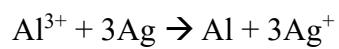
4. Determine which compound is oxidized and which is reduced and identify the reducing and oxidizing agents for the following reactions.



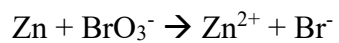
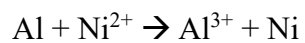
5. Calculate the standard cell potential for the following reaction:



What if the reaction was:



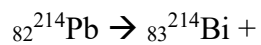
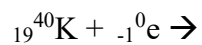
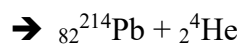
6. Balance the following redox reactions using the half-reaction method:



7. Balance the following redox reaction in basic conditions:



8. Complete and determine which type of radioactive decay is occurring in the following:



9. The atomic # is equal to:

10. The atomic mass is equal to:

11. What are the five layers of the atmosphere from farthest from us to closest to us?

12. Which part of the atmosphere do we live in?

13. Using arrows (right, left, up, down), explain how the following trends change across the periodic table and define them?

A) Ionization Energy

B) Atomic Radius

C) Electronegativity