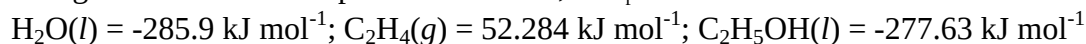


CHE 111 EXAM 2 Name _____

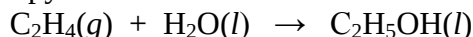
1. A bomb calorimeter consists of metal parts with a heat capacity of $850.0 \text{ J } ^\circ\text{C}^{-1}$ and 1100 g of water. What is the heat capacity of the **entire** assembly?

2. A sample of nickel weighing 425 grams was initially at a temperature of 26.20°C . It required 975 joules to increase the temperature to 31.55°C . What is the specific heat of the nickel?

3. Using the standard enthalpies of formation, ΔH_f° :



calculate the standard enthalpy of reaction for



Write the oxidation numbers of each atom in the following compounds:

4. NaClO_3 5. BF_3

Write the oxidation numbers of each atom in the following ions:

6. Co^{2+} 7. FeF_6^{3-} 8. H_2PO_4^-

Write and balance the following reactions:

9. $\text{Sn} + \text{HCl} \rightarrow \text{SnCl}_2 +$

10. $\text{Fe} + \text{H}^+ + \text{NO}_3^- \rightarrow \text{Fe}^{3+} + \text{NO} + \text{H}_2\text{O}$

11. $\text{Li} + \text{HCl} \rightarrow$

12. Write the net ionic equation for the reaction which takes place when $\text{HBr}(aq)$ is added to $\text{AgNO}_3(aq)$.

13. 10 mL of 1.00 molar nitric acid solution was diluted in enough water to make 100 mL of solution. The molarity of the diluted solution is _____

14. Write the equation for the ionization of sodium nitrate with water.

15. Magnesium metal reacts with aqueous sulfuric acid solution to produce magnesium sulfate (in solution) and hydrogen gas. In the course of the reaction, which element undergoes an increase in oxidation number?

16. Write a formula of phosphoric acid.

17. Write a formula of ammonium sulfate.

Write the formulas of ions which are formed when the following compounds are dissolved in water:

18. HNO_3

19. KHSO_4

20. $\text{Ba}(\text{OH})_2$