

**Pre-Lab 2 Quiz: Lab 3- Thiamine Catalyzed Benzoin Condensation.**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is the structure of Vitamin B<sub>1</sub>? Show conjugate acid(Vitamin B<sub>1</sub>)/base(OH<sup>-</sup>) reaction to produce thiazolium and enamine ylide rings.
2. Why is ylide of Vitamin B<sub>1</sub> is stable? (10 pts)
3. Write the step 3 (coupling of two benzaldehyde molecules) in the Vitamin B<sub>1</sub> catalyzed reaction mechanism of the benzoin condensation. (10 pts)
4. How many moles are in 7 mL of benzaldehyde? (10pts)  
Density of benzaldehyde (g /mL): 1.04)  
  
Ans: \_\_\_\_\_
5. Write the chemical reaction for benzoin condensation. What is the theoretical yield of benzoin starting with 7 mL of benzaldehyde? (10 pts)

Ans: \_\_\_\_\_