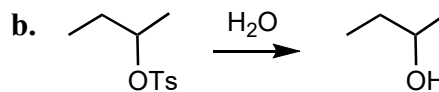
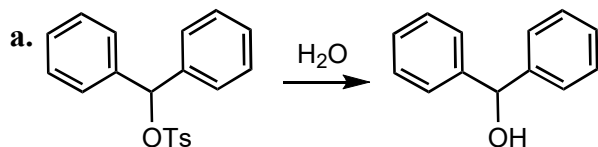


5A) (5 pts) For the given pair of reactions, name the mechanism, indicate which reaction will be faster (a or b or neither) and briefly explain why. **No explain = no credit.**



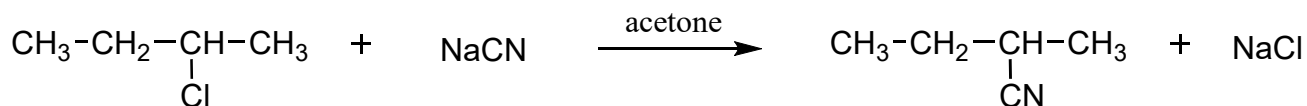
mechanism name?  Explain rate:

which is faster

(a, b or neither)?

---

5B) (6 pts) Provide a complete mechanism for the following  $S_N2$  substitution reaction. Be sure to **provide a detailed structure for NaCN**, and pay close attention to details (lone pairs, formal charges, curved arrows).

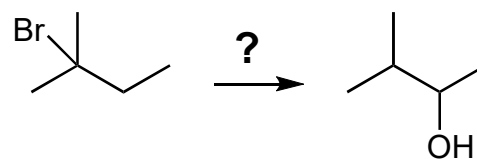


---

5C) (8 pts) Four sets of reagents are provided below. **Identify the correct reagents** needed to achieve the given transformation, and **show why the other reagents fail** to produce the desired target molecule. You do not have to provide a detailed explanation, but you must **provide support** for your answers (i.e., what products are generated using the other methods?). **No work = no credit.**

- 1) *t*-BuOK
- 2)  $\text{BH}_3$ -THF
- 3)  $\text{H}_2\text{O}_2$ , NaOH

- 1) EtONa
- 2)  $\text{BH}_3$ -THF
- 3)  $\text{H}_2\text{O}_2$ , NaOH



- 1) *t*-BuOK
- 2)  $\text{H}_2\text{O}$ ,  $\text{H}_2\text{SO}_4$

- 1) NaOH
- 2)  $\text{H}_2\text{O}$ ,  $\text{H}_2\text{SO}_4$