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Tuesday, November 17 - Quiz 19

1. In an S_N2 reaction in which OH^- is the nucleophile, in which solvent will the rate will the rate (be) the fastest?
 - ▷ **a polar aprotic solvent**
 - ▷ a nonpolar solvent
 - ▷ a polar protic solvent
 - ▷
2. The carbon center in a alkyl halide is
 - ▷ an unsaturated center
 - ▷ a nucleophile
 - ▷ a cation
 - ▷ **an electrophile**
 - ▷
3. Why is the rate of reaction for an S_N2 reactions so much slower for a 3° alkyl halide than for a 1° alkyl halide?
 - ▷ the leaving group is more reactive in an 1° alkyl halide
 - ▷ steric crowding is much less in 3° alkyl halides
 - ▷ because ΔG° is much smaller for a 3° alkyl halide
 - ▷ **steric crowding is much greater in 3° alkyl halides**
 - ▷
4. At the transition state of an S_N2 reaction reaction
 - ▷ **the C—Nu bond is *partially* formed and the C—LG bond is *partially* broken.**
 - ▷ the C—Nu bond is *partially* formed and the C—LG bond is *completely* broken.
 - ▷ the C—Nu bond is *completely* formed and the C—LG bond is *partially* broken.
 - ▷ the C—Nu bond is *partially* formed and the C—LG bond is *completely in tact*.
 - ▷
5. The rate law expression for an S_N2 reactions reaction has the form
 - ▷ rate = $k[\text{electrophile}]$

- ▷ $\text{rate} = k[\text{electrophile}]^2$
 - ▷ $\text{rate} = k[\text{nucleophile}]^2$
 - ▷ **$\text{rate} = k[\text{electrophile}][\text{nucleophile}]$**
 - ▷
6. What is the meaning of S_N2 ?
- ▷ substitution nucleophilic two transition states
 - ▷ substitution nucleophilic two two reagents
 - ▷ **substitution nucleophilic two second order**
 - ▷ substitution nucleophilic two twice
 - ▷
7. Which would you expect to be the best nucleophile?
- ▷ F^-
 - ▷ $(\text{CH}_3)_2\text{CH}^-$
 - ▷ **CH_3^-**
 - ▷ $(\text{CH}_3)_3\text{C}^-$
 - ▷
8. In substitution reactions with alkyl halides,
- ▷ the nucleophile is the leaving group
 - ▷ a hydrogen becomes the leaving group
 - ▷ **the halide is the leaving group**
 - ▷ the electrophile is the leaving group
 - ▷
9. Of the following, which is the better nucleophile?
- ▷ H_2O
 - ▷ NH_3
 - ▷ RNH^-
 - ▷ **NH_2^-**
 - ▷