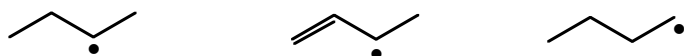


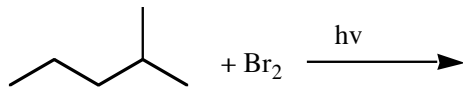
Due

1. Write the mechanism (propagation steps only!) for the reaction of propane with bromine to give 2-bromopropane. Include detailed arrow-pushing.

2. Rank the stability of the following radicals, from 1 (most stable) to 3 (least stable).



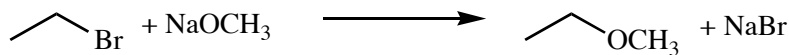
3. Draw the major product of the following reaction.



4. Which of the following statements correctly explains why bromination reactions are more selective than chlorination reactions.

- bromine radical is less stable than chlorine radical, so it is more reactive and less choosy
- bromine radical is more stable than chlorine radical, so it is more reactive and less choosy
- bromine radical is more stable than chlorine radical, so it is less reactive and more choosy
- bromine radical is less stable than chlorine radical, so it is less reactive and more choosy
- relative radical stability is 3° radicals $>$ 2° radicals $>$ 1° radicals when bromine radicals snatch hydrogens from alkanes, but when chlorine radicals snatch hydrogens the resulting alkyl radical stability is 3° radicals $<$ 2° radicals $<$ 1° radicals

5. The following ionic substitution reaction has a rate constant $r=k[\text{CH}_3\text{CH}_2\text{Br}]^1[\text{NaOCH}_3]^1$.



What will happen to the overall rate if the concentration of bromoethane doubles?

If the concentration of NaOCH_3 doubles?

What will happen to the overall rate if you use the same amount of each reactant, but you double the amount of solvent that you use?