Quiz (Substitution Reaction)

- 1. Draw the structural formula and write IUPAC names for ALL possible monosubstitution and di-substitution products if propane reacts with bromine under sunlight.
- 2. Write the mechanism for the following equation:

$$CH_3Br + Br_2 \longrightarrow CH_2Br_2 + HBr$$

Suggested Answer

1. CH₃CH₂CH₂Br CH₃CHBrCH₃ 1-bromopropane 2-bromopropane

CH₃CHBrCH₂Br CH₃CBr₂CH₃ CH₂BrCH₂CH₂Br

1,2-dibromopropane 2,2-dibromopropane 1,3-dibromopropane

CH₃CH₂CHBr₂

1,1-dibromopropane

2. Initiation: $Br_2 \longrightarrow UV \rightarrow 2Br \bullet$

Propagation: $CH_3Br + Br \bullet \longrightarrow \bullet CH_2Br + HBr$

 $\bullet CH_2Br + Br_2 \longrightarrow CH_2Br_2 + Br \bullet$

Termination: $2Br \bullet \longrightarrow Br_2$