

Name: _____

Date: _____

[6 pt] 1. Answer the following questions about Substitution Reactions and the Free Radicals mechanism for explaining them.

- (a) What is a free radical **and** how are they formed?

 - (b) Write a reaction illustrating the formation of a free radical.

 - (c) Define each of the 3 steps in a Free Radical reaction.

 - (d) What are the three types of free radicals formed? Draw pictures and label them.

 - (e) Circle the most stable Free Radical in the pictures you drew above.
 - (f) What is the "Selectivity Rule" for Substitution reactions.
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2. What are the 5 steps to completing a substitution reaction?
 - (a)
 - (b)
 - (c)
 - (d)
 - (e)
 3. What are the 4 types of molecules that can be Substituted?
 - (a)
 - (b)
 - (c)
 - (d)

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[24 pt] 4. Complete the following reactions by filling in the missing reactants or products. You should answer each part in the format the reaction is presented in. Assume monosubstitutions. If multiple products are made, circle the more stable product.

