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| **Chemistry 11**  **Lab 15B: Preparation of Esters** | **Name: Date: Block:** |

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| **For Students:**  Lab performed:  Lab due: | **For Teacher:**  Pre-lab completion:  Yes  No  Lab Submitted:  On Time  Late |

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| **Pre-Lab** |

1. What two organic compounds react together to form an ester?
2. Look at the general reaction for the formation of an ester on page 271. What type of reaction is this? *See Organic 5 notes.*
3. How do you name an ester?
4. Name the ester formed from the reaction of ethyl alcohol and propanoic acid.
5. What two things will you do to speed up this reaction?
6. What are the objectives for this lab?
7. In your own words, describe what you will do during this lab. List all the chemicals you will be using in order.
8. What are 3 safety concerns in this lab? For each safety concern, describe a way that you will stay safe during this lab.
9. How will you dispose of your lab materials?

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| **Observations** |

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| **Test Tube** | **Carboxylic Acid** | **Alcohol** | **Name of Ester Formed** | **Odor** |
| 1 | 1 mL acetic acid | 1 mL ethanol |  |  |
| 2 | 1 mL butanoic acid | 1 mL methanol |  |  |
| 3 | 1g salicylic acid | 1 mL methanol |  |  |
| 4 | 1 mL butanoic acid | 1 mL ethanol |  |  |

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| **Lab Report** |

*Attached to this sheet of paper, please include answers to the following questions:*

1. Using structural formulas, write the equations for the reactions that occurred in each of the test tubes. Include and name all reactants and products. *Refer to page 273 in lab textbook for reactant structures.*
2. What is the name of the ester formed from each of the following combinations?
   1. Ethanol and hexanoic acid
   2. Methanol and pentanoic acid
3. What combination of alcohol and acid will form the following esters?
   1. Hexyl octanoate
   2. Methyl butanoate
4. What are 3 possible sources of error in this lab? If you list human error, please explain what you will do to reduce/eliminate that problem in the next lab
5. Did you meet the objectives of this lab? Why or why not?

This lab report is due on: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_