

Name: \_\_\_\_\_

Period: \_\_\_\_

### Lab: Preparation of Esters

**Purpose:** To prepare esters by condensation reactions of carboxylic acids and alcohols.

**Procedure:**

- (1) Label six test tubes #1, 2, 3, 4, 5, and 6.
- (2) Combine the reactants in the quantities indicated in the table below.

Test Tube	Carboxylic Acid	Alcohol
1	10 drops butanoic acid	10 drops ethanol
2	10 drops ethanoic acid	10 drops 1-pentanol
3	10 drops ethanoic acid	10 drops 1-butanol
4	10 drops ethanoic acid	10 drops methanol
5	10 drops ethanoic acid	10 drops 1-octanol
6	1 small scoop 2-hydroxybenzoic acid	10 drops methanol

- (3) To each of the test tubes, add 4 drops of concentrated sulphuric acid.
- (4) Pour about 150 mL of water into a 400 mL beaker. Place the test tubes into the water and heat the water on a hot plate to a temperature of approximately 60 °C. Continue to heat the test tubes for 20 minutes.
- (5) Using tongs, transfer the test tubes to a water bath. Add 5 mL of distilled water to each of the test tubes.
- (6) Carefully note the odour and appearance of each of the test tubes and record your observations in the table below.
- (7) Discard the waste into the appropriate waste container.

**Observations:**

Test Tube	Observations
1	
2	
3	
4	
5	
6	

**Questions:**

Complete the following condensation reactions:



(3)



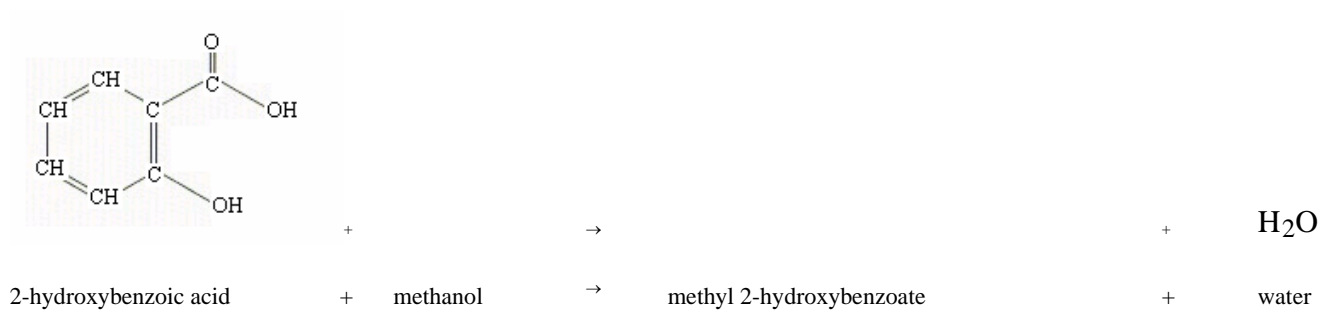
(4)



(5)



(6)



**Conclusion:**

Complete the following general equation:

carboxylic acid + alcohol →