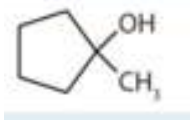
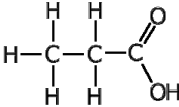
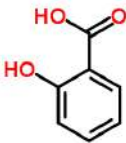
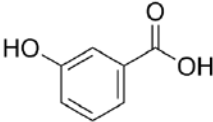


## Review: , Carboxylic Acids, Esters, and Aspirin

**Part 1 - Alcohols: (15pts)** Name or draw each of these alcohols and categorize as primary (1°), secondary (2°), or tertiary (3°)

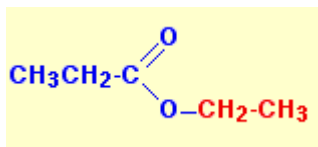
1. (2pts)		2. (2pts)	$\begin{array}{c} \text{OH} \\   \\ \text{CH}_3\text{CHCHCH}_2\text{CH}_3 \\   \\ \text{CH}_3 \end{array}$	3. (2pts)	$\begin{array}{c} \text{CH}_2\text{CH}_3 \\   \\ \text{CH}_3 - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{CH}_2\text{OH} \end{array}$
1°    2°    3°		1°    2°    3°		1°    2°    3°	
4. (3pts)	2,3-dimethyl-3-hexanol	5. (3pts)	1-propanol	6. (3pts)	3,3-dichloro-1-pentanol
1°    2°    3°		1°    2°    3°		1°    2°    3°	

**Part 2 – Carboxylic Acids: (17pts)** Name or draw each of these carboxylic acids. Write the common or IUPAC names as requested.

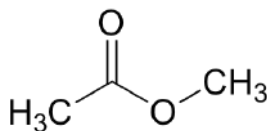
7. (3pts)		8. (2pts)		9. (2pts)	
IUPAC:		IUPAC:		IUPAC:	
Common:		Common:			
Location:					
10. (4pts) Acetic acid		11. (4pts) Methanoic acid		12. (2pts) Benzoic acid	
IUPAC:		Common:			
Location:		Locattion:			

**Part 3 - Esters: (12pts) Name or draw each of the esters in the space provided.**

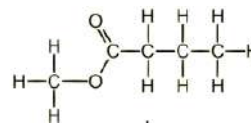
13. (2pts)



14. (2pts)



15. (2pts)



16. (2pts) Propyl ethanoate

17. (2pts) ethyl ethanoate

18. (2pts) Methyl pentanoate

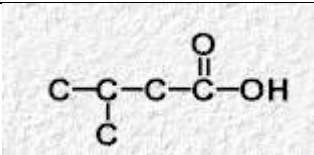
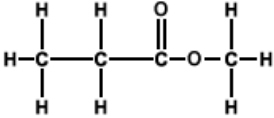

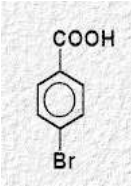
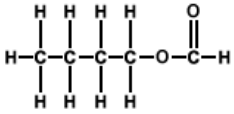
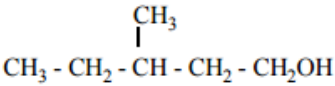
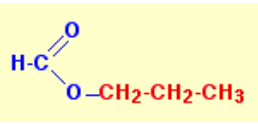
**Part 4: Formation of Esters Reactions**

19. (20pts) Please finish the word equation and then draw the structures for the reactions between each of the following:

a. Ethanoic acid + methanol  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_

b. Propanoic acid + ethanol  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_

**Part 4: Mixed Compounds (21pts) Finish each table.**

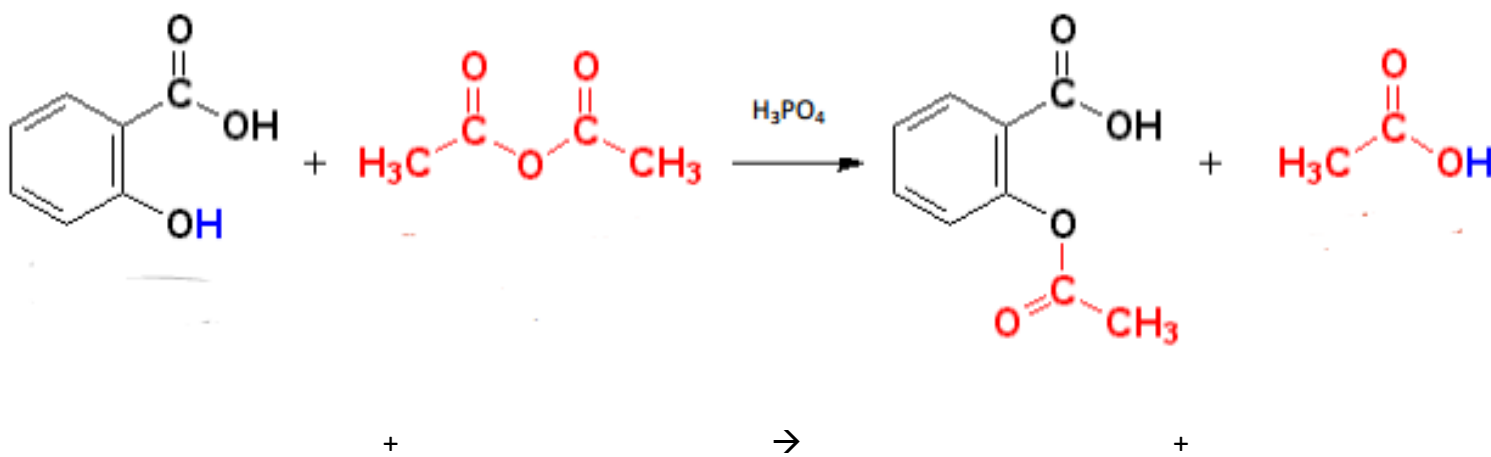
<p>20. (2pts)</p>  <p>IUPAC:</p> <p>Common:</p>	<p>21. (2pts)</p> 	<p>22. (2pts)</p>  <p>1°    2°    3°</p>
<p>23. (3pts) 2-methyl-cyclopentanol</p> <p>1°    2°    3°</p>	<p>24. (2pts)</p>  <p>IUPAC:</p> <p>Common:</p>	<p>25. (2pts)</p> 
<p>26. (2pts)</p>  <p>1°    2°    3°</p>	<p>27. (2pts)</p> 	<p>28. (4pts) butyric acid</p> <p>IUPAC:</p> <p>Location:</p>

### Part 5: Description of the Synthesis of an Ester Lab (5 pts)

29. Please describe the process by which you made the pineapple fragrant ester, ethyl butanoate. Answer in the past tense with no personal pronouns. CORRECTLY IDENTIFY the carboxylic acid and alcohol needed to make ethyl butanoate. Be specific with the equipment used and the role of each substance. Draw a sketch if you think it might help with understanding.

### Part 6: Aspirin

30. A. (5pts) Please **circle and label** each functional group on each substance in this reaction.
- B. (4pts) On the lines beneath each substance, label the name of each: **acetic acid, acetic anhydride, acetylsalicylic acid, and salicylic acid.**



31. (3pts) List three things aspirin is effective for.

32. (2pts) Define antipyretic and analgesic

33. (2pts) Explain where salicylic acid is found in nature and how it has been used in its natural form historically.

34. (2pts) List unpleasant side effects of aspirin on the body

35. (2pts) Describe your aspirin vs commercial aspirin titration results and explain why these results make sense.

36. (3pts) Would salicylic acid or acetylsalicylic acid produce a positive test with iron (III) chloride? What is the evidence of a positive test with the iron (III) chloride? Explain why each would or would not produce a positive test.

37. (4pts) Describe the role of acid-base body conditions on the breakdown of aspirin in the body (specifically the transition from the stomach to the small intestines)