


## Unit 5 Review

## Multiple Choice

Identify the choice that best completes the statement or answers the question.

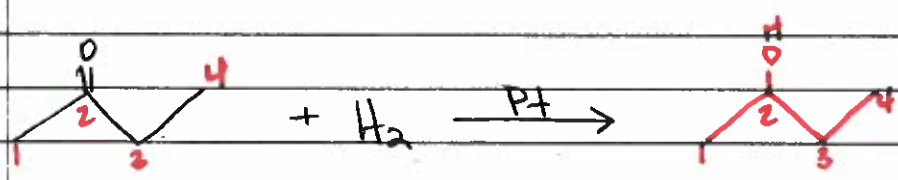
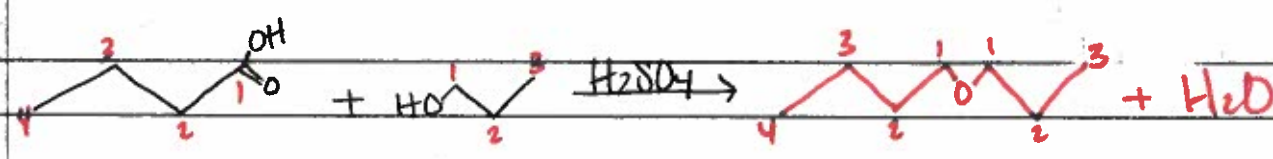
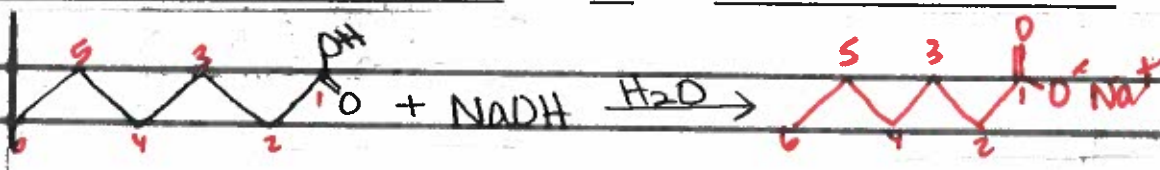
- C 1. Which structural feature is common to aldehydes and ketones  
 a. an oxygen atom bonded to both a carbon atom and a hydrogen atom  
 b. an oxygen atom bonded to two carbon atoms  
 c. an oxygen atom double bonded to a carbon atom  
 d. two oxygen atoms bonded to the same carbon atom
- B 2. Which of the following functional groups can never be terminal?  
 a. aldehyde  
 b. ketone  
 c. both (a) and (b)  
 d. neither (a) nor (b)
- C 3. Which of the following is the geometry at the carbon atom of an aldehyde or ketone?  
 a. linear  
 b. tetrahedral  
 c. trigonal planar  
 d. square planar
- OC 4. The bond angle at the carbon atom of an aldehyde or ketone should be closest to which of the following  
 a.  $90^\circ$   
 b.  $109.5^\circ$   
 c.  $120^\circ$   
 d.  $180^\circ$
- B 5. Which of the following is true in naming aldehydes and ketones?  
 a. the root name is based on the longest carbon chain  
 b. the root name is based on the longest carbon chain which contains the carbonyl carbon  
 c. the oxygen atom is always bonded to C-1  
 d. the oxygen atom is never bonded to C-1
- B 6. In the name 2-methyl-2-propenal the numbers represent which of the following?  
 a. the position of the substituent and the position of the carbonyl group  
 b. the position of the substituent and the position of the double bond  
 c. the position of the carbonyl group and the position of the double bond  
 d. none of the above, since the name does not correspond to a real compound
- B 7. How many different aldehydes have the molecular formula  $C_4H_8O$ ?  
 a. 1  
 b. 2  
 c. 3  
 d. 4
- D 8. What is the IUPAC name of ?  
 a. 4-aldyltoluene  
 b. 4-toluyaldehyde  
 c. methylbenzaldehyde  
 d. 4-methylbenzaldehyde
- C 9. Which of the following is a correct IUPAC name?  
 a. 1-methylpropanal  
 b. 2-ethylpropanal  
 c. 2,2-dimethylpropanal  
 d. none of these
- A 10. How is a compound which contains an aldehyde functionality and a hydroxyl group named?  
 a. as an aldehyde with a substituent  
 b. as an alcohol with a substituent  
 c. as an aldohol  
 d. as an alcoal
- C 11. What is the IUPAC name of  $HOCH_2CH_2CHO$ ?  
 a. aldopropanol  
 b. 2-hydroxypropanol  
 c. 3-hydroxypropanol  
 d. 1,3 propanedial



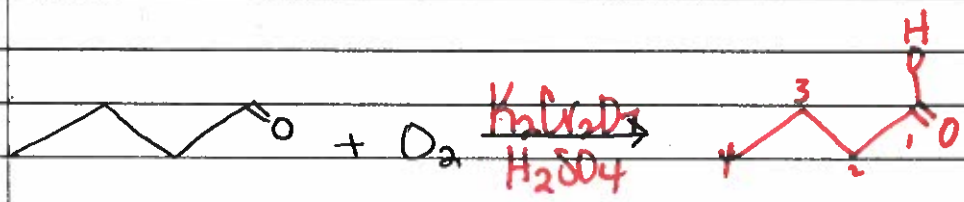
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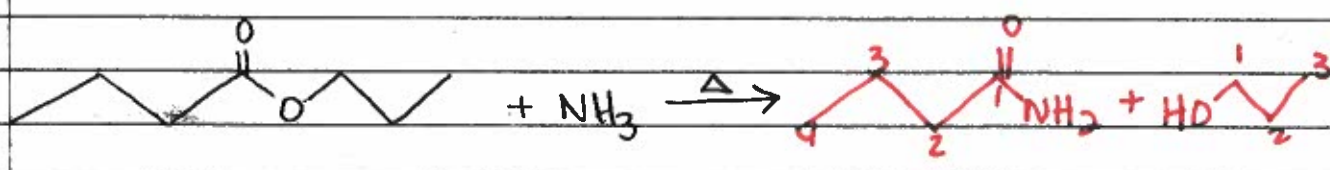
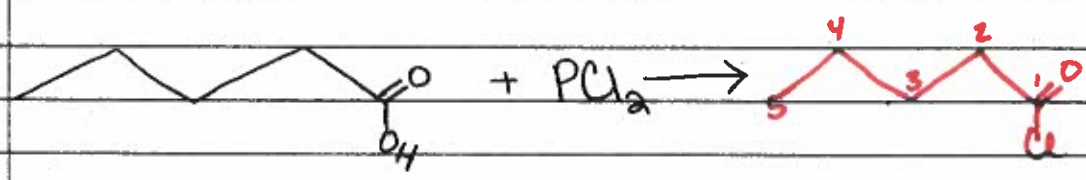
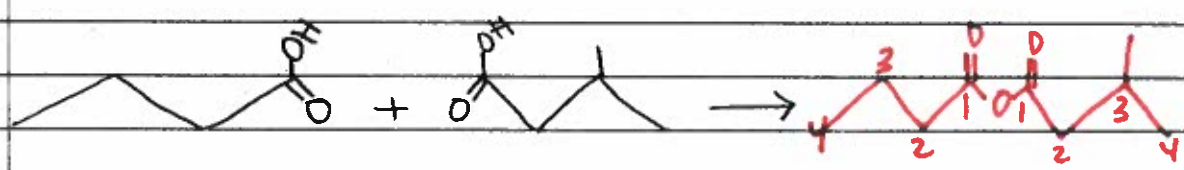
- B 26. What is the name of the simplest aromatic carboxylic acid?  
a. benzenoic acid    b. benzoic acid    c. benzylic acid    d. toluic acid
- B 27. What is the IUPAC name of  $\text{CH}_3\overset{\text{OH}}{\underset{|}{\text{C}}}\text{HCH}_2\text{COOH}$ ?  
a. 2-hydroxybutanoic acid    c.  $\beta$ -hydroxybutanoic acid  
b. 3-hydroxybutanoic acid    d.  $\gamma$ -hydroxybutanoic acid
- C 28. How many polar covalent bonds are found in the carboxyl group?  
a. 1    b. 2    c. 3    d. 4
- D 29. When compared with the boiling points of other compounds of comparable molecular weight, which of the following is true of the boiling points of carboxylic acids?  
a. they are significantly lower than the boiling points of other compounds  
b. they are slightly lower than the boiling points of other compounds  
c. they are slightly higher than the boiling points of other compounds  
d. they are significantly higher than the boiling points of other compounds
- D 30. Which is the lightest carboxylic acid which has limited solubility in water?  
a. butanoic acid    b. heptanoic acid    c. hexanoic acid    d. pentanoic acid
- B 31. Saponification requires which of the following as a catalyst?  
a. a strong acid    b. a strong base    c. a weak acid    d. a weak base
- B 32. What is the name of the compound produced by the reaction of benzoic acid with ammonia?  
a. ammonium benzide    c. ammonia benzide  
b. ammonium benzoate    d. ammonia benzoate
- C 33. Of the following classes of compounds, which is the hardest to reduce?  
a. aldehydes    b. alkenes    c. carboxylic acids    d. ketones
- B 34. What is the product obtained when a carboxylic acid is reduced?  
a. an aldehyde    c. a secondary alcohol  
b. a primary alcohol    d. a ketone
- A 35. The Fischer esterification reaction is an example of which of the following?  
a. condensation    b. hydrolysis    c. reduction    d. oxidation
- B 36. Decarboxylation involves the loss of which of the following?  
a. CO    b. CO<sub>2</sub>    c. H<sub>2</sub>CO<sub>2</sub>    d. none of these
- C 37. What type of compound is obtained when carboxylic acid with no other function groups is decarboxylated?  
a. an aldehyde    b. an alcohol    c. a hydrocarbon    d. a ketone



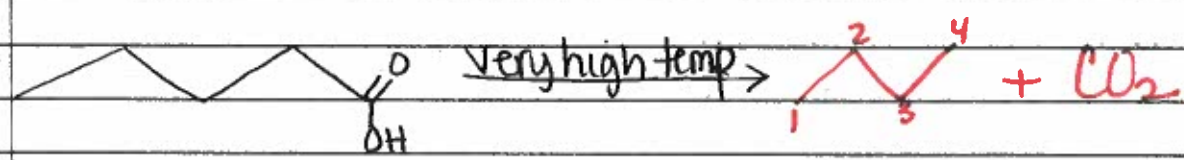
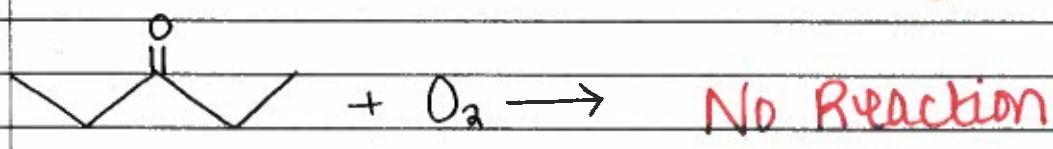
Test Catalysts



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