<ol> <li>Given the incomplete equation representing an organic addition reaction:</li> <li>X(g) + Cl<sub>2</sub>(g) → XCl<sub>2</sub>(g)</li> </ol>	8. Given the equation: $ \begin{array}{ccccccccccccccccccccccccccccccccccc$		
<ul> <li>A) CH4</li> <li>B) C2H4</li> <li>C) C3H8</li> <li>D) C4H10</li> </ul> 2. Given the balanced equation for an organic reaction:	<ul> <li>Which type of reaction is represented by this equation?</li> <li>A) combustion B) esterification</li> <li>C) polymerization D) substitution</li> </ul>		
$C_2H_2 + 2Cl_2 \rightarrow C_2H_2Cl_4$ This reaction is best classified as	<ol> <li>9. The reaction that joins thousands of small, identical molecules to form one very long molecule is called</li> </ol>		
A) additionB) esterificationC) fermentationD) substitution	<ul> <li>A) esterification</li> <li>B) fermentation</li> <li>C) polymerization</li> <li>D) substitution</li> </ul>		
3. As an addition reaction occurs, the number of electrons shared between carbon atoms	equation below? Note: <b>n</b> and <b>n</b> are very large numbers equal to about 2000.		
A) decreasesB) increasesC) remains the same	$n \begin{pmatrix} H \\ c = c \end{pmatrix} \rightarrow \begin{pmatrix} H \\ I \\ - c \\ - c \\ - c \end{pmatrix}$		
4. Which is an example of an addition reaction? A) $CH_2COOCH + CH_2OH \rightarrow CH_2COOCH_2 + H$			
A) $CH_{3}COOH + CH_{3}OH \rightarrow CH_{3}COOCH_{3} + H_{2}O$ B) $C_{2}H_{6} + Cl_{2} \rightarrow C_{2}H_{5}Cl + HCl$ C) $C_{3}H_{6} + H_{2} \rightarrow C_{3}H_{8}$	<ul> <li>A) esterification B) fermentation</li> <li>C) saponification D) polymerization</li> <li>11. Which organic reaction produces rubber and plastics?</li> </ul>		
D) $C_6H_{12}O_6 \rightarrow 2 C_2H_5OH + 2 CO_2$ 5. Given the balanced equation representing a reaction:	A) polymerization B) esterification C) saponification D) fermentation		
$\mathrm{CH}_3\mathrm{CH}_2\mathrm{CH}_3 + \mathrm{Br}_2 \rightarrow \mathrm{CH}_3\mathrm{CH}_2\mathrm{CH}_2\mathrm{Br} + \mathrm{HBr}$	12. Which material is a synthetic polymer?		
This organic reaction is best classified as	A) starchB) nylonC) celluloseD) protein		
<ul> <li>A) an addition reaction</li> <li>B) an esterification reaction</li> <li>C) a polymerization reaction</li> <li>D) a substitution reaction</li> </ul>	13. Given the reaction: O H $CH_3C$ —OH + HOC <sub>2</sub> H <sub>5</sub> $\longrightarrow$ CH <sub>3</sub> C—O—C <sub>2</sub> H <sub>5</sub> + H <sub>2</sub> O This reportion is on eventuals of		
Which compound will undergo a substitution reaction with chlorine?	A) fermentation B) saponification		
A) CH <sub>4</sub> B) C <sub>2</sub> H <sub>4</sub> C) C <sub>3</sub> H <sub>6</sub> D) C <sub>4</sub> H <sub>8</sub>	C) hydrogenation <b>D) esterification</b>		
7. When methane reacts with a halogen, the type of reaction is	fragrances for the perfume industry?		
<ul><li>A) addition</li><li>B) saturation</li><li>C) substitution</li><li>D) hydrogenation</li></ul>	A) ethersB) estersC) alkanesD) alkynes		

## **Review Organic Reactions**

15.	In the reaction:		21. When butane burns in principal products are		an excess of oxygen, the	
	$CH_3COOH + CH_3OH \rightarrow CH_3COOCH_3 + H_2O$ the organic product can best be identified as A) an alcohol B) a ketone C) an ester D) an acid 5. What are the products of a fermentation reaction? A) an alcohol and carbon monoxide B) an alcohol and carbon dioxide C) a salt and water D) a salt and an acid	<ul> <li>A) CO<sub>2</sub> and H<sub>2</sub>O</li> <li>C) CO and H<sub>2</sub>O</li> <li>22. Which reaction result</li> <li>A) esterification</li> <li>C) polymerization</li> </ul>	<ul> <li>A) CO<sub>2</sub> and H<sub>2</sub>O</li> <li>C) CO and H<sub>2</sub>O</li> <li>Which reaction results</li> </ul>	<ul><li>B) CO<sub>2</sub> and H<sub>2</sub></li><li>D) CO and H<sub>2</sub></li><li>in the production of soap?</li></ul>		
16.			<ul><li>B) fermentation</li><li>D) saponification</li></ul>			
		<ol> <li>The principal products of saponification, a reaction between a fat and a base, are soap and</li> </ol>				
			<ul><li>A) water</li><li>C) carbon dioxide</li></ul>	<ul><li>B) glycerol</li><li>D) ethyl alcohol</li></ul>		
17.	7. Which reaction produces ethanol?		24. Primary alcohols can be dehydrated to produce			
	<ul><li>A) combustion</li><li>C) fermentation</li></ul>	<ul><li>B) esterification</li><li>D) polymerization</li></ul>		<ul><li>A) ethers</li><li>C) esters</li></ul>	<ul><li>B) organic acids</li><li>D) aldehydes</li></ul>	
18.	The reaction C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> example of	$\rightarrow$ 2C <sub>2</sub> H <sub>5</sub> OH + 2 CO <sub>2</sub> is an	25.	25. The equation		
	<ul><li>A) esterification</li><li>C) fermentation</li></ul>	<ul><li>B) distillation</li><li>D) saponification</li></ul>		$CH_{3}OH + CH_{3}OH \rightarrow CH_{3}OCH_{3} + H_{2}O$ illustrates the		
19.	<ul> <li>A) C<sub>3</sub>H<sub>8</sub>(g) + 5 O<sub>2</sub>(g) → 3 CO<sub>2</sub>(g) + 4 H<sub>2</sub>O (g)</li> <li>B) 2 H<sub>2</sub>(g) + O<sub>2</sub>(g) → 2 H<sub>2</sub>O (g)</li> <li>C) 3 Cu<sup>2+</sup>(aq) + 2 Fe(s) → 3 Cu(s) + 2 Fe<sup>3+</sup>(aq)</li> <li>D) NaOH(aq) + HCl(aq) → NaCl(aq) + H<sub>2</sub>O(l)</li> <li>Most hydrocarbons undergo oxidation in the presence of excess oxygen to form</li> <li>A) carbon monoxide and carbon</li> </ul>		A) oxidation of alcohols to form a ketone			
				<ul><li>B) oxidation of alcohols to form an acid</li><li>C) dehydration of alcohols to form a polymer</li><li>D) dehydration of alcohols to form an ether</li></ul>		
20.						

- B) carbon monoxide and water
- C) carbon dioxide and carbon
- D) carbon dioxide and water

## Answer Key Organic Reactions

- 1. <u>B</u>
- 2. <u>A</u>
- 3. <u>A</u> 4. <u>C</u>
- 4. <u>C</u>
- 5. <u>D</u> 6. <u>A</u>
- 7. <u>C</u>
- 8. <u>C</u>
- 9. <u>C</u>
- 10. **D**
- 11. <u>A</u>
- 12. <u>B</u>
- 13. **D**
- 14. <u>B</u>
- 15. <u>C</u>
- 16. <u>B</u> 17. <u>C</u>
- $\frac{17.}{18.} \quad \frac{C}{C}$
- 10. <u>e</u> 19. <u>A</u>
- 20. <u>D</u>
- $20. \quad \mathbf{D}$
- 21. <u>A</u>
- 22. **D**
- 23. <u>B</u>
- 24. <u>A</u>
- 25. <u>D</u>