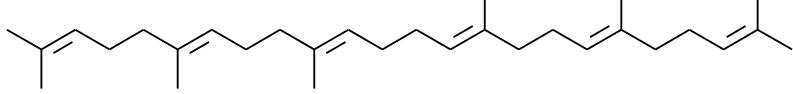
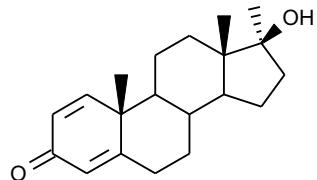
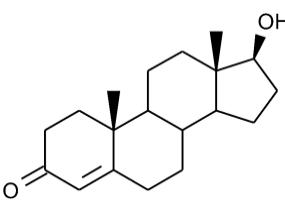
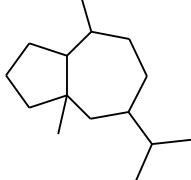
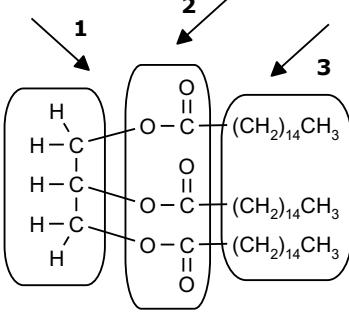


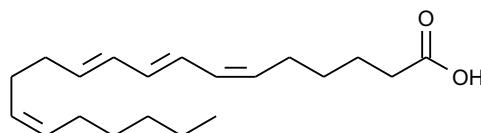
## LIPID EXERCISE TEST

1)	Put the following acids, derived from the hydrolysis of triglycerides, in order of melting point.  (1) Elaidic acid; (2) Arachidonic acid; (3) Arachidic acid. <sup>1</sup>
	A) <b>3 &gt; 1 &gt; 2.</b> B) <b>2 &gt; 1 &gt; 3.</b> C) <b>1 &gt; 3 &gt; 2.</b> D) <b>1 &gt; 2 &gt; 3.</b>
2)	Indicate whether the following compounds have detergent activity.
	(1) Potassium hexadecanoate; (2) 1-Hexadecanol.
	A) <b>1 = Yes; 2 = Yes.</b> B) <b>1 = Yes; 2 = No.</b>
	C) <b>1 = No; 2 = Yes.</b> D) <b>1 = No; 2 = No.</b>
3)	Indicate the correct statement regarding phospholipids.
	(1) A cholesterol molecule is present;
	(2) Charged functional groups are present.
	A) <b>1 = Yes; 2 = Yes.</b> B) <b>1 = Yes; 2 = No.</b>
	C) <b>1 = No; 2 = Yes.</b> D) <b>1 = No; 2 = No.</b>
4)	Indicate the correct statement regarding squalene (molecular formula = C <sub>30</sub> H <sub>50</sub> ).
	
	A) It is a terpene with all "head-to-head" junctions.
	B) It is a terpene with both "head-to-tail" and "tail-to-tail" junctions.
	C) It's a terpene with all "head-to-tail" junctions.
	D) It's not a terpene.
5)	Indicate a possible component of a phospholipid, in addition to glycerol and two fatty acids..
	(1) Coline; (2) Ethanolamine.
	A) <b>1 = Yes; 2 = Yes.</b> B) <b>1 = Yes; 2 = No.</b>
	C) <b>1 = No; 2 = Yes.</b> D) <b>1 = No; 2 = No.</b>

<sup>1</sup> IUPAC names of the acids: arachidic = icosanoic acid (C<sub>19</sub>H<sub>39</sub>CO<sub>2</sub>H); arachidonic = (Z,Z,Z,Z)-5,8,11,14-eicosatetraenoic acid; elaidic = (E)-9-octadecenoic acid.

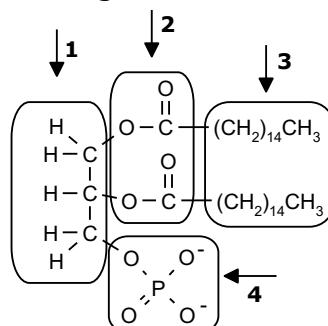
6)	<p>Indicate which class of compounds the following molecules belong to.</p> <p><b>1</b></p>  <p><b>2</b></p> $  \begin{array}{c}  \text{O} \quad \text{O} \\  \parallel \quad \parallel \\  \text{H}-\text{C}-\text{O}-\text{C}-\text{(CH}_2\text{)}_{14}\text{CH}_3 \\    \quad   \\  \text{H}-\text{C}-\text{O}-\text{C}-\text{(CH}_2\text{)}_{14}\text{CH}_3 \\    \quad   \\  \text{H}-\text{C}-\text{O}-\text{C}-\text{(CH}_2\text{)}_{14}\text{CH}_3  \end{array}  $
7)	<p>Indicate how many <math>-\text{CH}_3</math> groups are present in Testosterone.</p> <p><b>1</b></p>  <p><b>A) 0.</b>    <b>B) 2.</b>    <b>C) 4.</b>    <b>D) 6.</b></p>
8)	<p>Define the following compound.</p> <p><b>1</b></p>  <p><b>A) It's not a terpene.</b>    <b>B) It's a monoterpene.</b>  <b>C) It's a sesquiterpene.</b>    <b>D) It is a diterpene.</b></p>
9)	<p>Indicate which are the hydrophobic regions of the following triglyceride.</p> <p><b>1</b></p> <p><b>2</b></p> <p><b>3</b></p>  <p><b>A) 1 and 2.</b>    <b>B) 2 and 3.</b>    <b>C) 1 and 3.</b>    <b>D) 2.</b></p>

10) Indicate whether the following compound is a prostaglandin..



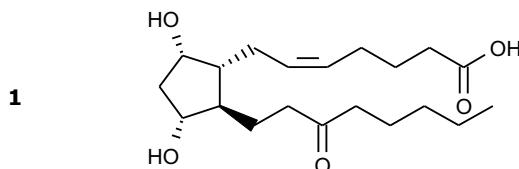
A) Yes.  
 B) No, because the cyclopentane ring is not present.  
 C) No, because it's a carboxylic acid.  
 D) No, because it has 20 carbon atoms.

11) Indicate which are the hydrophobic regions of the following phospholipid.

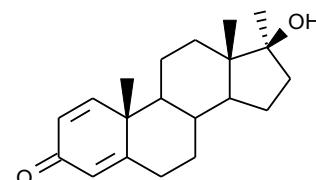


A) 1 and 3.      B) 2 and 4.      C) 3.      D) 4.

12) Indicate which class of compounds the following molecules belong to.

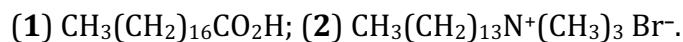


**2**



A) 1 = Amino acid; 2 = Prostaglandin.  
 B) 1 = Phospholipid; 2 = Triglyceride.  
 C) 1 = Steroid; 2 = Triglyceride.  
 D) 1 = Prostaglandin; 2 = Steroids.

13) Indicate whether the following compounds have detergent activity.



A) **1** = Yes; **2** = Yes.      B) **1** = Yes; **2** = No.  
 C) **1** = No; **2** = Yes.      D) **1** = No; **2** = No.

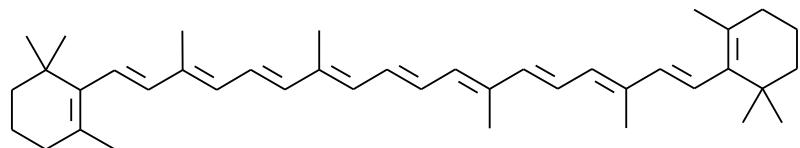
14) Using Merrifield synthesis, what experimental precaution should be taken if you want to synthesize the tripeptide Gly-Ala-Phe?<sup>2</sup>

(1) The amino group of Gly must be activated;  
 (2) The carboxyl group of Ala must be protected.

A) **1** = Yes; **2** = Yes.      B) **1** = Yes; **2** = No.  
 C) **1** = No; **2** = Yes.      D) **1** = No; **2** = No.

<sup>2</sup> Merrifield synthesis = solid-phase synthesis. Ala = Alanine; Gly = Glycine; Phe = Phenylalanine

15) Indicate how many isoprene units make up  $\beta$ -carotene (molecular formula =  $C_{40}H_{56}$ ).



A) 7.      B) 8.      C) 10.      D) 6.