

Be sure to answer all free response questions with complete sentences.

1. a. What does it mean to say that fats and oils are triacylglycerols?

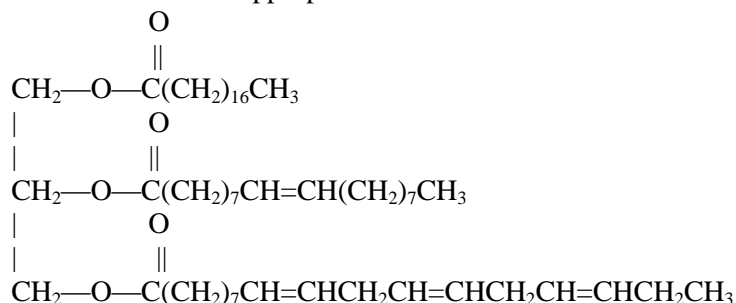
b. Draw the diglyceride: 1-palmitoyl-2-oleoylglycerol

2. Draw the structure of a cerebroside made up of  $\beta$ -D-glucose, sphingosine and caprylic acid.

3. What are the differences between saturated, monounsaturated and polyunsaturated fatty acids. Draw the structures of lauric acid,  $\gamma$ -linolenic acid and palmitoleic acid, then label them according to saturated, monunsat- and polyunsaturated.

4. What is the difference between a triacylglycerol and a phospholipid? Draw 1-stearoyl-2-arachidonoylphosphatidylcholine.

5. Draw the structures of all products you would obtain by saponification of the following lipid with aqueous KOH. Be sure to include all appropriate names



6. Draw the structure of prostaglandin E<sub>2</sub>.

7. Androstenedione is an androgen steroid precursor for testosterone and estradiol. Androstenedione has a general steroid structure with two carbonyls at carbons 3 & 17 and a double bond between C4 C5. Draw the structure of androstenedione.

8. What would the products of phospholipase C catalysis of 1-lauroyl-2-linoleoyl-3-phosphatidylinositol? Be sure to draw and name each of the products.

9. Leukotriene B<sub>4</sub> (LTB<sub>4</sub>) is a lipoxygenase mediated eicosanoid that is responsible for cell adhesion properties of blood cells. The IUPAC name is 5,12-dihydroxy-6,8,10,14-eicosatetraenoic acid. Draw this structure.