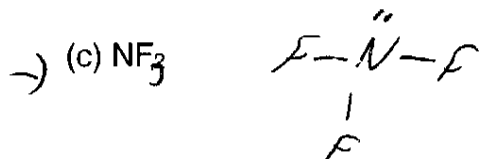
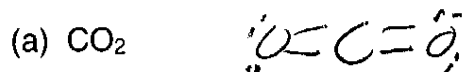


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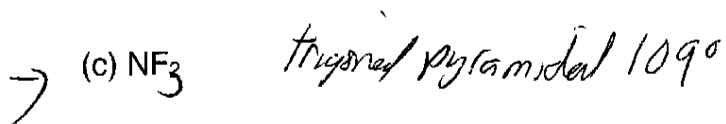
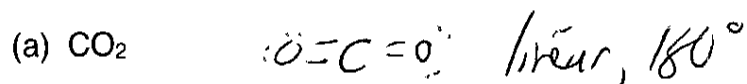
Name Key

247

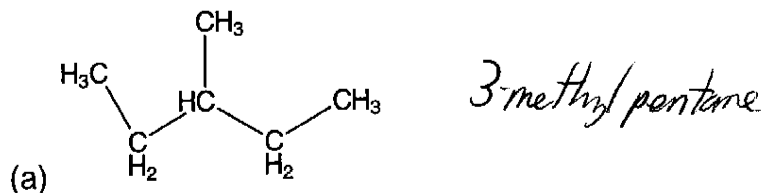
(1)(3 points) Draw the Lewis Dot Structures for the following molecules:

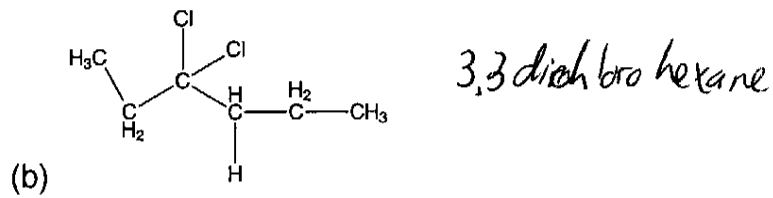


(2)(3 points) List the VSEPR geometry and bond angles for the following molecules:



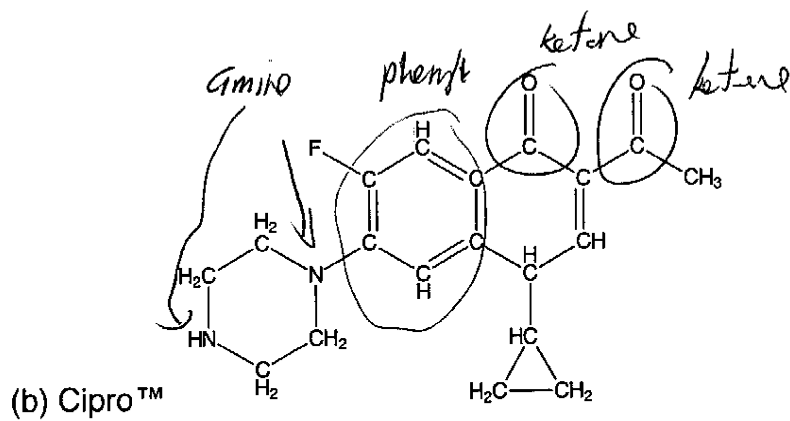
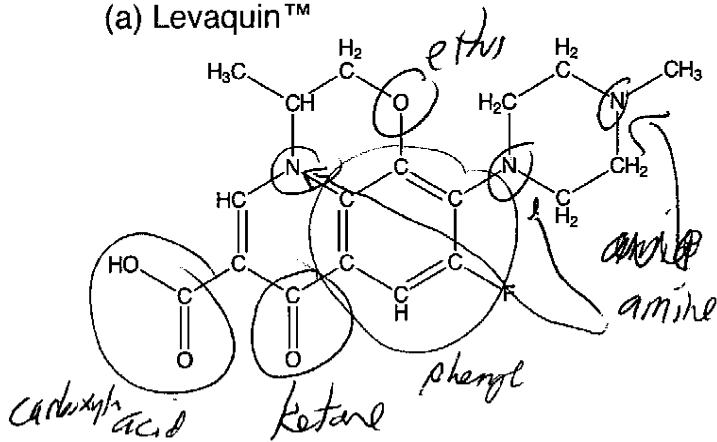
(3)(2 points) Write the names for the following alkanes and halo alkanes





(4)(8 points) Circle the functional groups in the molecules below and label each functional group with its name.

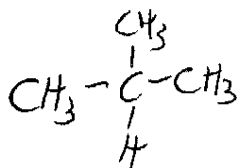
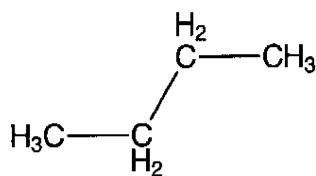
(a) Levaquin™



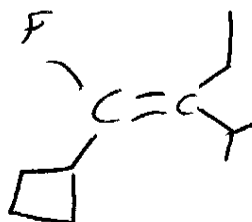
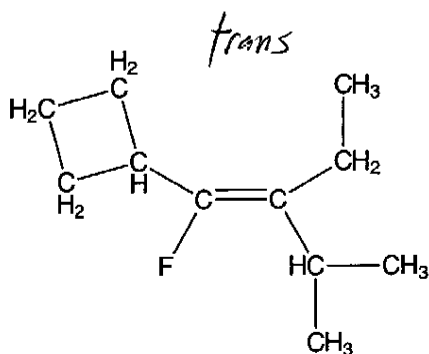
(5) Isomers: (6 points)

(a) Draw a structural isomer of butane (below)

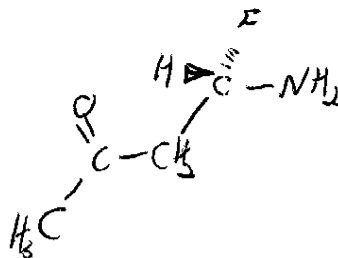
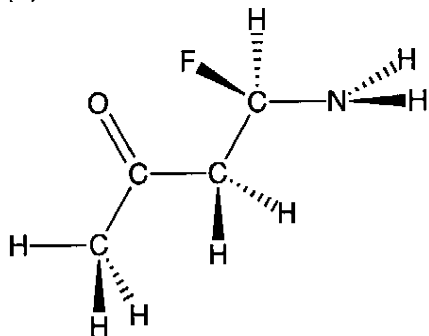
IP



(b) *Draw* Label the other conformation isomer of the structure below and label each cis or trans



(c) Draw the other stereoisomer of the molecule below

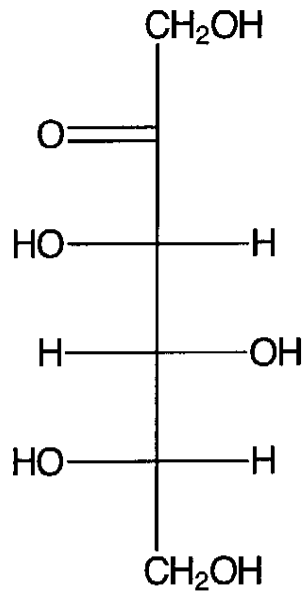


(6)(4 points) Fats and oils can be converted to soap or biodiesel by adding sodium hydroxide (lye). A byproduct of these processes is glycerine (or glycerol). Why is glycerine produced when fats or oils are broken apart?

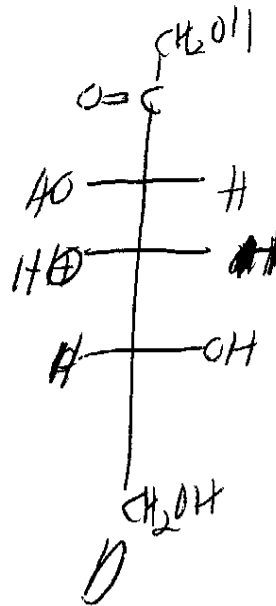
(7)(4 points) The percentages of saturated and unsaturated fats in different sources of lipids are listed below. Why are people encouraged to have more sunflower oil and corn oil in their diets and less butter and lard? Why is coconut oil singled out for dietary scorn and derision?

Lipid	Saturated fatty acids	Monounsaturated fatty acids	Polyunsaturated fatty acids
Butter	68	28	4
Lard	43	47	10
Corn Oil	13	28	59
Sunflower oil	13	21	66
Olive Oil	15	73	12
Coconut Oil	91	7	2

(8)(4 points) For the Fisher projection of fructose below, draw the enantiomer and label both enantiomers as D or L.



L



(9)(4 points) Name some structural saccharides and explain what they do and their basic structure.

Cellulose is the structural sugar in plants. It is made of a long chain of glucose

Chitin is used in insect shells. It is a long chain of

(10)(4 points) How do sugars on the surface of blood cells affect what type of blood a person can receive? How does it work?

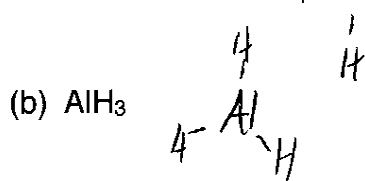
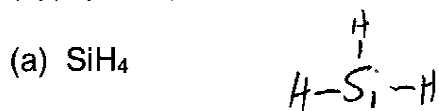
The sugars reside on the blood cell surface. The sugars react with blood antibodies to form clots. You can't receive a blood type with sugars that react with your blood antibodies. Type O has no blood cell sugars, but anti A + anti B antibodies, so can't receive A, B, or AB blood.

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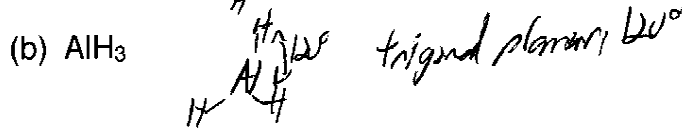
447

Name Key

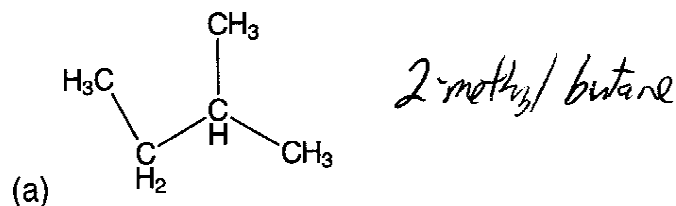
(1)(3 points) Draw the Lewis Dot Structures for the following molecules:

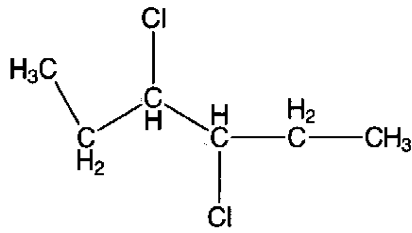


(2)(3 points) List the VSEPR geometry and bond angles for the following molecules:



(3)(2 points) Write the names for the following alkanes and halo alkanes



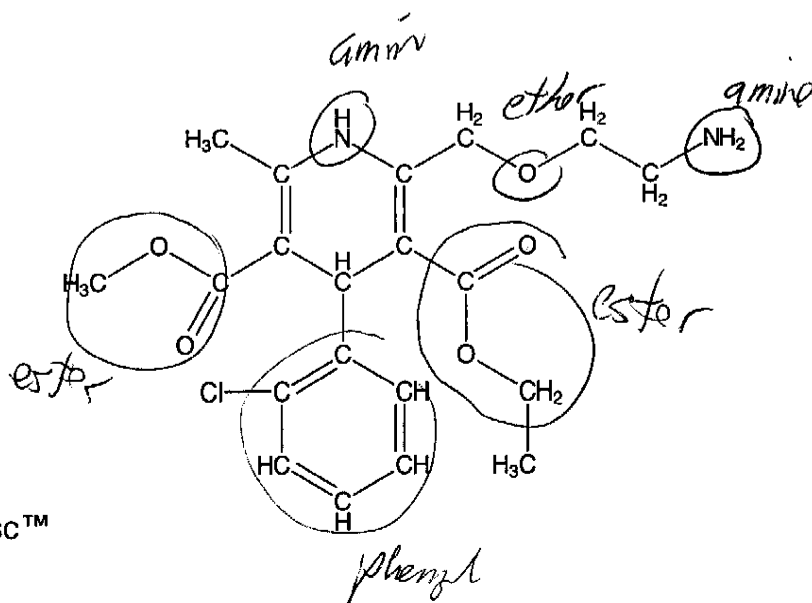
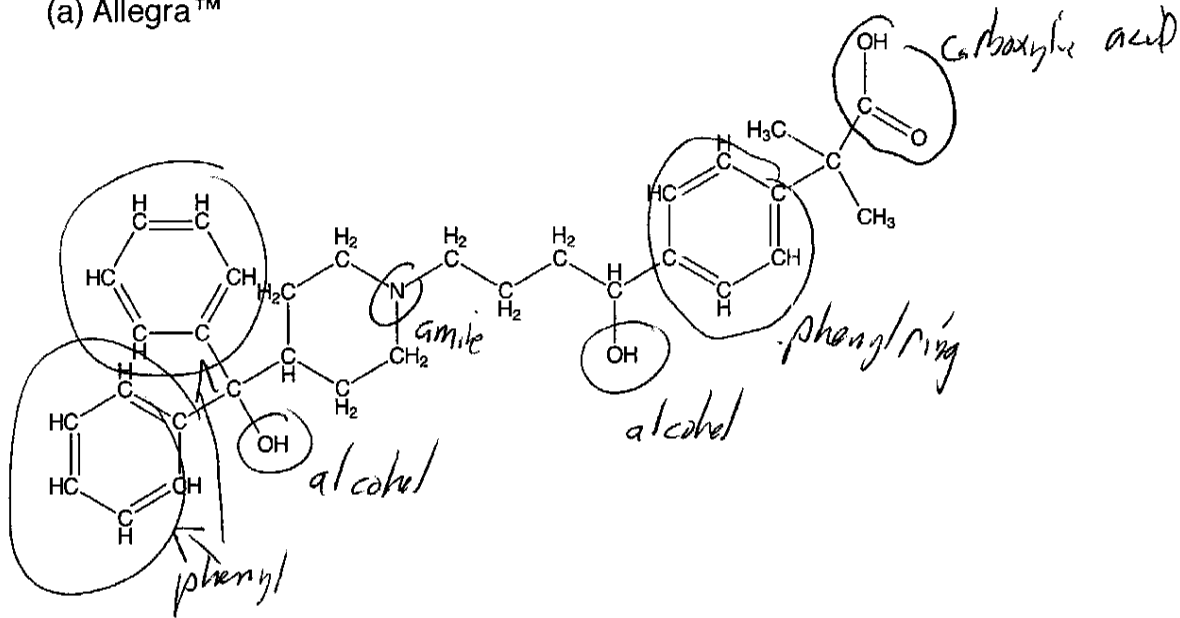


3,4 dichlorohexane

(b)

(4)(8 points) Circle the functional groups in the molecules below and label each functional group with its name.

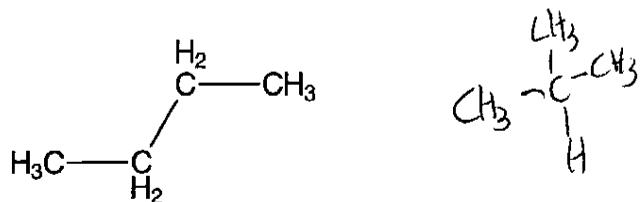
(a) Allegra™



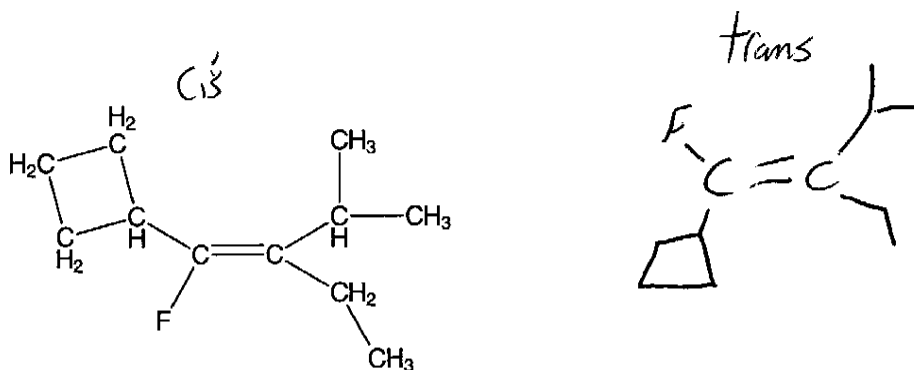
(b) Norvasc™

(5) Isomers: (6 points)

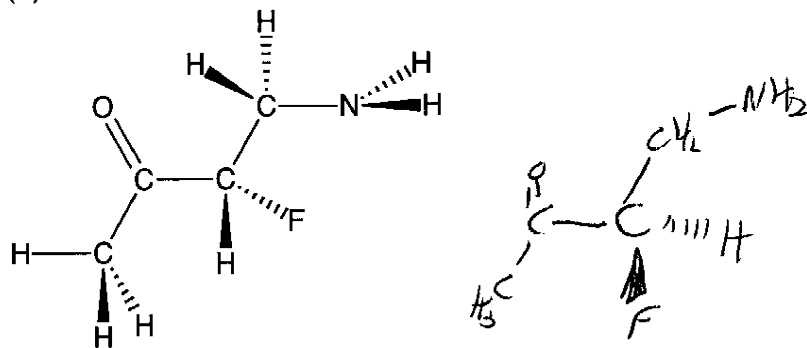
→ (a) Draw a structural isomer of butane (below)



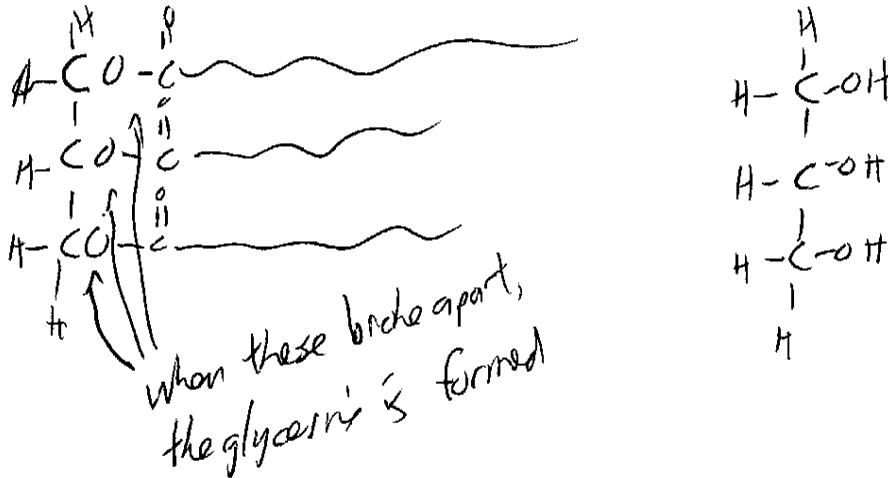
(b) Label the other conformation isomer of the structure below and label each cis or trans



(c) Draw the other stereoisomer of the molecule below



(6)(4 points) Fats and oils can be converted to soap or biodiesel by adding sodium hydroxide (lye). A byproduct of these processes is glycerine (or glycerol). Why is glycerine produced when fats or oils are broken apart?

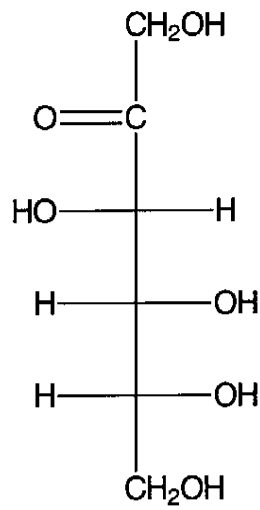


(7)(4 points) The percentages of saturated and unsaturated fats in different sources of lipids are listed below. Why are people encouraged to have more sunflower oil and corn oil in their diets and less butter and lard? Why is coconut oil singled out for dietary scorn and derision?

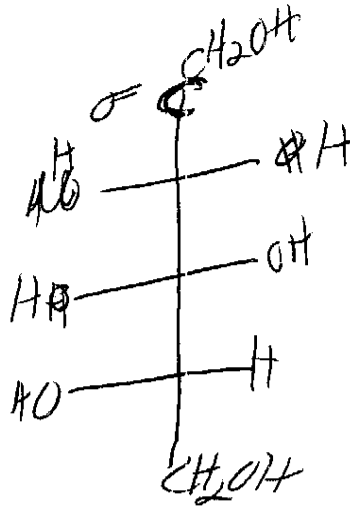
Lipid	Saturated fatty acids	Monounsaturated fatty acids	Polyunsaturated fatty acids
Butter	68	28	4
Lard	43	47	10
Corn Oil	13	28	59
Sunflower oil	13	21	66
Olive Oil	15	73	12
Coconut Oil	91	7	2

Unsaturated fats are liquid at room temp and don't cause the health problems saturated fats do. Corn and sunflower oil have low levels of saturated fats compared to lard & butter. Coconut oil has a massive 91% saturated fat!

(8)(4 points) For the Fisher projection of fructose below, draw the enantiomer and label both enantiomers as D or L.



D



L

(9)(4 points) Name some structural saccharides and explain what they do and their basic structure.

(10)(4 points) How do sugars on the surface of blood cells affect what type of blood a person can receive? How does it work?

(11)(2 points) Based on the following information, list the type of solid.

(a) The solid dissolves in water, but the solution does not conduct electricity

polar molecular solid

(b) The solid is insoluble in water and hydrocarbons, but the solid does conduct electricity.

metallic solid

(12)(3 points) What type(s) of intermolecular forces are present in the following molecules?

(a) SiH_4 *dispersion*

(b) AlH_3 *dispersion*

(c) SO *dispersion, dipole-dipole*

Extra Credit: (3 points) When mannose (below) is reduced, it forms the sugar alcohol mannitol. Draw the structure of mannitol.

