

CHEM 1124 Exam 2. October 19,2011

Name _____

I certify that I have neither given nor received unauthorized aid on this assignment

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

(a) SiH_4

(b) AlH_3

(c) SO

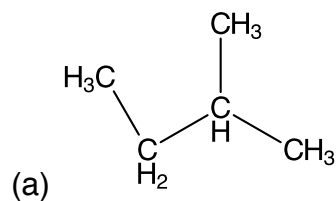
(2)(3 points) List the VSPER geometry and bond angles for the following molecules:

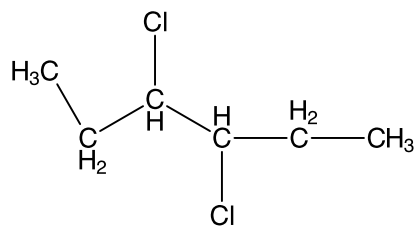
(a) SiH_4

(b) AlH_3

(c) SO

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

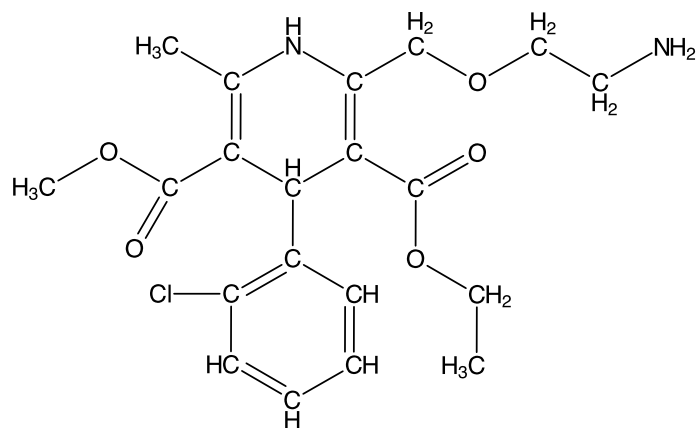
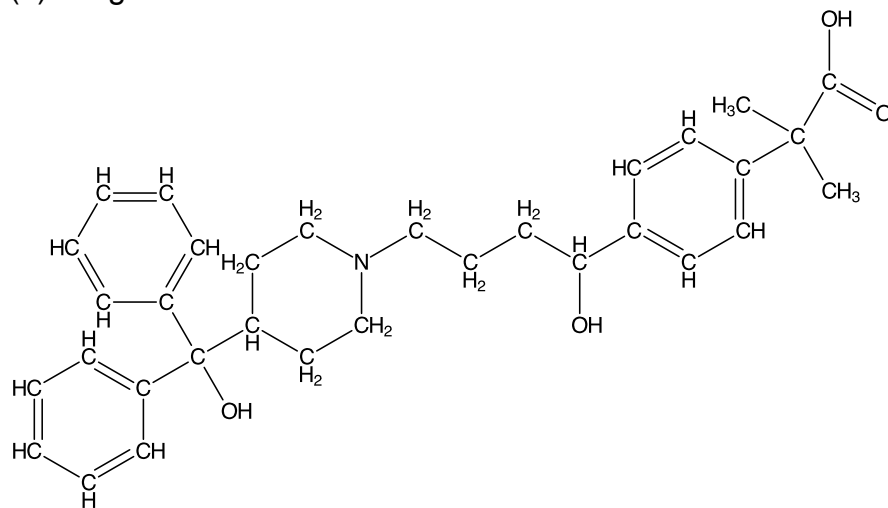




(b)

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

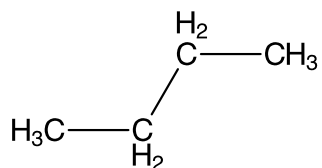
(a) Allegra™



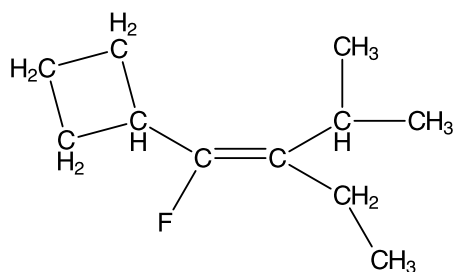
(b) Norvasc™

(5) Isomers: (6 points)

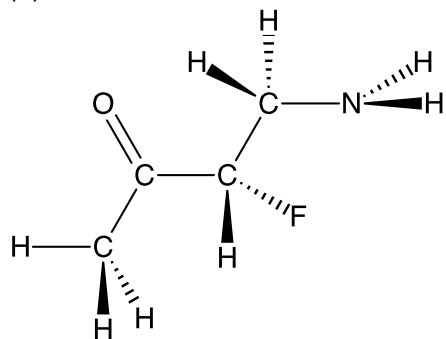
(a) Draw a structural isomer of butane (below)



(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

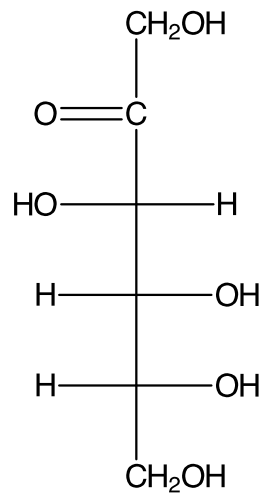


(6)(4 points) Fats and oils can be converted to soap or biodiesel by adding sodium hydroxide (lye). A byproduct of these processes is glycerine (or glycerol). Why is glycerine produced when fats or oils are broken apart?

(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

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

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

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

(a) SiH_4

(b) AlH_3

(c) SO

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

