CHEM 1124 Practice Exam 2.

Name_____

- (1) Draw the Lewis Dot Structures for the following molecules:
- (a) SH₂
- (b) PF₃
- (c) BF₃
- (2) List the VSPER geometry and bond angles for the following molecules:
- (a) SH₂
- (b) PF₃
- (c) BF₃
- (3) Draw the Lewis structure for the following alkanes
- (a) butane
- (b) 2-chloropropane
- (c) 1-bromo,2,3-dimethylcyclohexane

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



- (5) Draw a molecule containing the specified functional group
- (a) an ester

(b) an alkyne

(7) Label the following alkenes as cis or trans





(8) Mark the chiral centers on the following molecules with a *



(9) Why are fats and oils sometimes called triglycerides?

(10) Why do unsaturated fats melt at lower temperatures than saturated fats? How are unsaturated and saturated fats different?

(11) For the Fisher projection of galactose below, draw the entantiomer and label both entantiomers as D or L.



(12) When glucose units are connected in a long chain through α -glycosidic bonds, the result is the storage molecule amylose. When the same glucose molecules are connected in a long chain by β -glycosidic bonds, the result is the structural molecule cellulose. Why is the result so different and why do the resulting polysaccharides have such different properties?

- (13) What intermolecular forces are present in the following molecules?
- (a) NH₃
- (b) CH_2CI_2
- (C) CCl₄

(14) Indicate whether the following molecules would be more soluble in water, or hydrocarbons.

- (a) glucose
- (b) a triglyceride
- (c) NH₃
- (d) CCl₄