1. Identify the family of each of the following compounds:

- 2. Write structural formulas for the following compounds:
 - a) 3-chloro-2-methylheptanal
 - a) 3-methyl-4-hexene-2-ol
- 3. Which of the following are nonsaponifiable lipids?
 - a) triacylglycerols
- e) terpenes
- i) waxes

b) oils

d) steroids

- f) sphyngolipids
- j) leukotrienesk) plasmalogens

- c) sphingomyelins
- g) glycolipids
- h) prostoglandins
- 4. Write the equation showing triacylglycerol from glycerol and oleic, palmitic and stearic acids.
- 5. Point to the formula of tyrosine

6. Name the following compound:

- 7. Write the formula of guanine.
- 8. What are heterocyclic compounds?

9. Give the equation for each of the following reactions. If there is no reaction, state "no reaction".

1)
$$CH_2$$
-O-CO- $C_{17}H_{31}$
 CH -O-CO- $C_{17}H_{31}$ $+ H_2$ \longrightarrow CH_2 -O-CO- $C_{17}H_{31}$

2)
$$HO \longrightarrow CH_2\text{-}CH\text{-}COOH + \bigvee_{N} \bigvee_{N} \bigvee_{H} CH_2 - CH\text{-}COOH$$
3)

3)
$$CH_3 - CH - C \stackrel{O}{\underset{OH}{\longleftarrow}} + HBr \longrightarrow$$

4)
$$CH_3-CH_2-CH-C \stackrel{O}{\underset{OH}{\longleftarrow}} + CH_3OH \longrightarrow$$

5)
$$CH_3$$
- CH_2 - CH - $COOH$ $Ba(OH)_2$ head head

7) Write the equation for the digestion (hydrolysis) of Gly-Ala-Ser

8)
$$CHO$$
 $H \longrightarrow OH$
 $H \longrightarrow OH$
 $H \longrightarrow OH$
 CH_2OH