Worksheet 15 6 March 2014

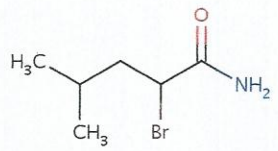
Part 1: Matching and open ended

1. The name of an uncharged amine d
2. These are amines derived from plants, animals, and fungi a
3. Decongestants and antihistamines are found as these b
4. Found in frog skin and arthropod extracts e
5. The first antimalaria drug/ used to fight fatigue and cold c

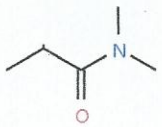
a. Alkaloids
b. Amine salts
c. Quinine
d. Free base
e. Pumiliotoxins

6. Give two properties of alkaloids.
   bases, taste bitter
7. Describe heterocyclic amines.
   a ring having one or more N's directly in the ring
8. What is the difference between an amine and an amide?
   amine: R-NH_2 amide: R-C(=O)-NH_2

Part 2: Naming and Classification of Amides. A) classify as 1°, 2°, or 3° & B) name the following amides

9. 

   a. primary
   b. 2-bromo-4-methyl pentanamide

10. 

    a. tertiary
    b. N,N-dimethyl propanamide

11. $CH_3CH_2CH_2(CO)NHCH_2CH_2CH_3$

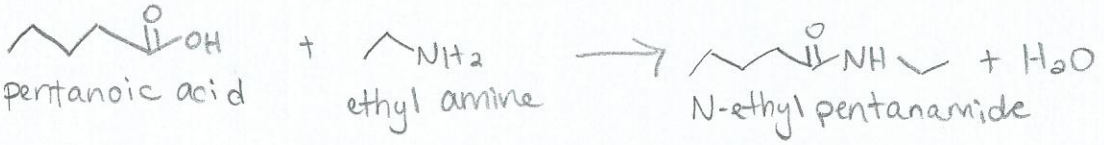
    a. secondary
    b. N-propyl butanamide

Part 3: Reactions- Amidation

Carboxylic acid + amine → amide + H_2O

12. From amidation:
    - primary amine → 2° amide
    - Secondary amine → 3° amide
    - Tertiary amine → No reaction
    - Ammonia → 1° amide

13. Write the reaction for the formation of N-ethyl pentanamide. Draw and name reactants!



pentanoic acid + ethyl amine → N-ethyl pentanamide

14. 2-methylbutanoic acid + N,N-dimethylamine →

PRACTICE MULTIPLE CHOICE

1. When propanoic acid reacts with methyl amine, the reaction called amidation yields d

N-methyl propanamide

   a. 2-methyl propanamide
   b. N-methyl propyl amide
   c. N-propyl methanamide
   d. N-methyl propanamide

2. What is the name for this compound? $CH_3CH_2CH_2NHCH_3$ c

N-methyl propanamine

   a. Propyl methanamine
   b. N-propyl methanamine
   c. N-methyl propanamine
   d. 2-Butanamine

3. Which of the following is NOT an alkaloid? b

   a. Serotonin
   b. Ethanamine
   c. Caffeine
   d. Quinine

4. Which of the following cannot form an amide? d

   a. NH_3
   b. $CH_3(CO)OH$
   c. $(CH_3)_2NH_2$
   d. $(CH_3)_3N$