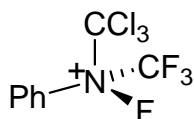


NAME: \_\_\_\_\_

To **not** have your graded script placed outside my office please check this box **(1-10) Are True or False**

- 1) Amines can act as bases because of the nitrogen atom which has a lone pair of electrons.
- 2) Amines show nucleophilic character because of the nitrogen atom which has a lone pair of electrons.
- 3) Aldehydes are more reactive than ketones in condensation reactions.
- 4) Nitrogen has an atomic number of 5.
- 5) Aldehydes are more reactive than ketones in nucleophilic addition reactions.
- 6) Aldehydes are easily oxidized to carboxylic acids, whereas ketones are generally resistant to oxidation.
- 7) Wittig reactions are used to produce alkenes.
- 8) Cyclic acetals are formed when a diol reacts with a carbonyl compound under acidic conditions.
- 9) This ion is chiral:

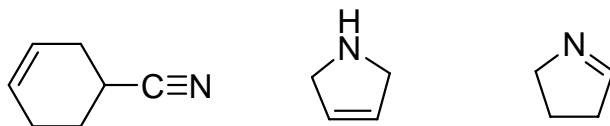


- 10) Hoffman eliminations involve an exhaustive alkylation step to create a good leaving group.

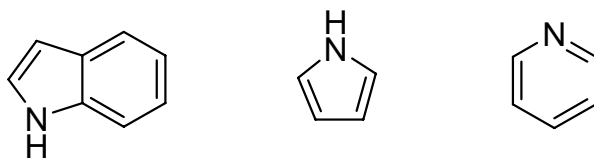
11-14) Circle the **strongest** base in each set.



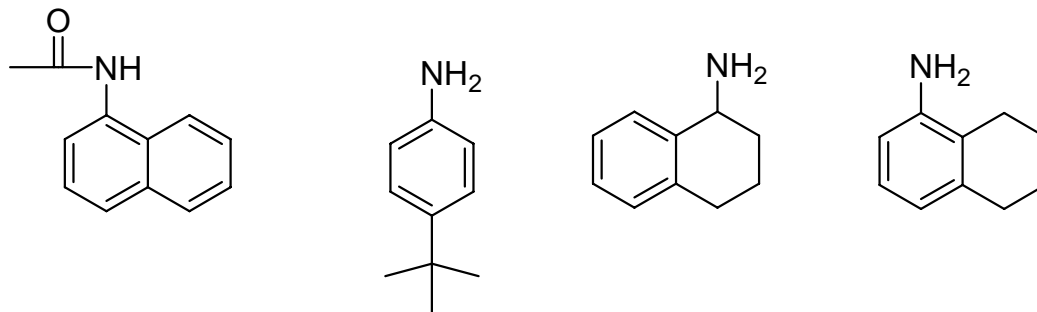
12)



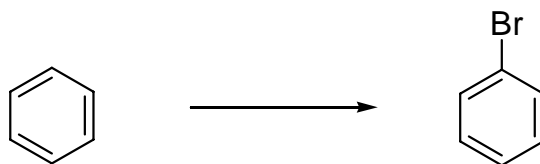
13)



14)



15) Devise a synthetic scheme to achieve this transformation **without** the use of  $\text{Br}_2$  (or  $\text{Br}_2$  / Lewis Acid).



16-18) Draw correct Lewis structures (*including lone pairs*) for a(n):

(16) Diazonium cation,  $\text{R-N}_2^+$

(17) Nitrile,  $\text{R-CN}$

(18) Isocyanate,  $\text{RNCO}$

19 and 20) Draw the mechanism for the reaction of a primary amine with nitrous acid ( $\text{HONO}$ ) to produce a diazonium salt.

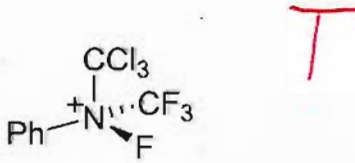
**\*BONUS QUESTION for up to 2 points \***

For  $\frac{1}{2}$  point each, name the legal and illegal compounds I talked about in lecture at the start of Ch 19.

NAME: \_\_\_\_\_

YOU KNOW WHAT AMINE?

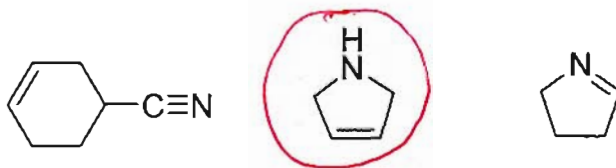
To **not** have your graded script placed outside my office please check this box **(1-10) Are True or False**

- 1) Amines can act as bases because of the nitrogen atom which has a lone pair of electrons. T
- 2) Amines show nucleophilic character because of the nitrogen atom which has a lone pair of electrons. T
- 3) Aldehydes are more reactive than ketones in condensation reactions. T
- 4) Nitrogen has an atomic number of 5. F
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- 7) Wittig reactions are used to produce alkenes. T
- 8) Cyclic acetals are formed when a diol reacts with a carbonyl compound under acidic conditions. T
- 9) This ion is chiral:  
 T
- 10) Hoffman eliminations involve an exhaustive alkylation step to create a good leaving group. T

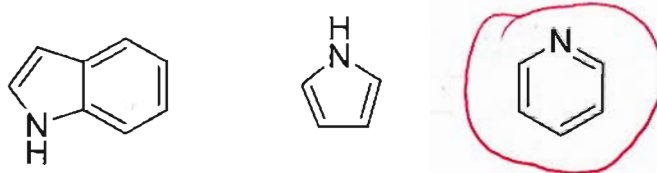
11-14) Circle the **strongest** base in each set.



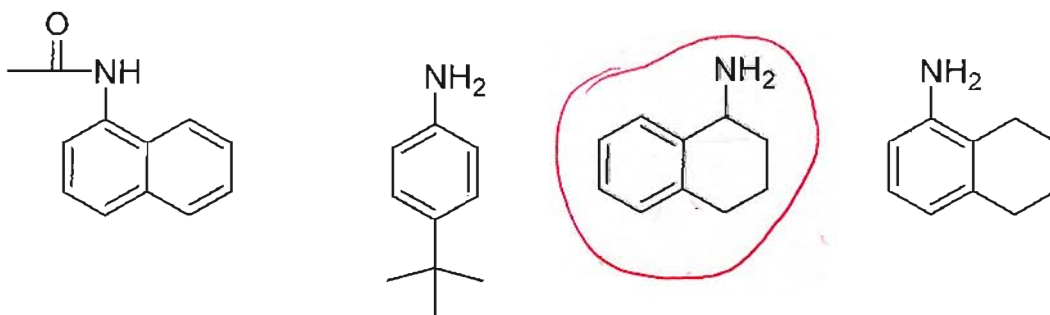
12)



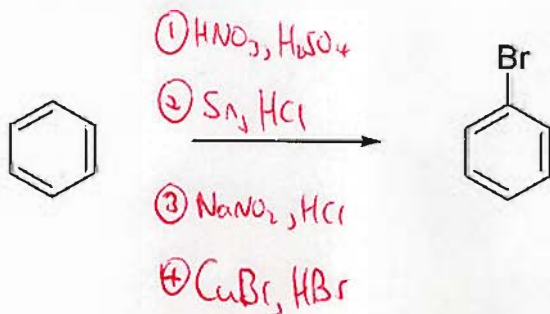
13)



14)



15) Devise a synthetic scheme to achieve this transformation **without** the use of  $\text{Br}_2$  (or  $\text{Br}_2$  / Lewis Acid).



16-18) Draw correct Lewis structures (including lone pairs) for a(n):

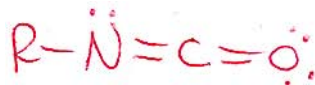
(16) Diazonium cation,  $R-N_2^+$



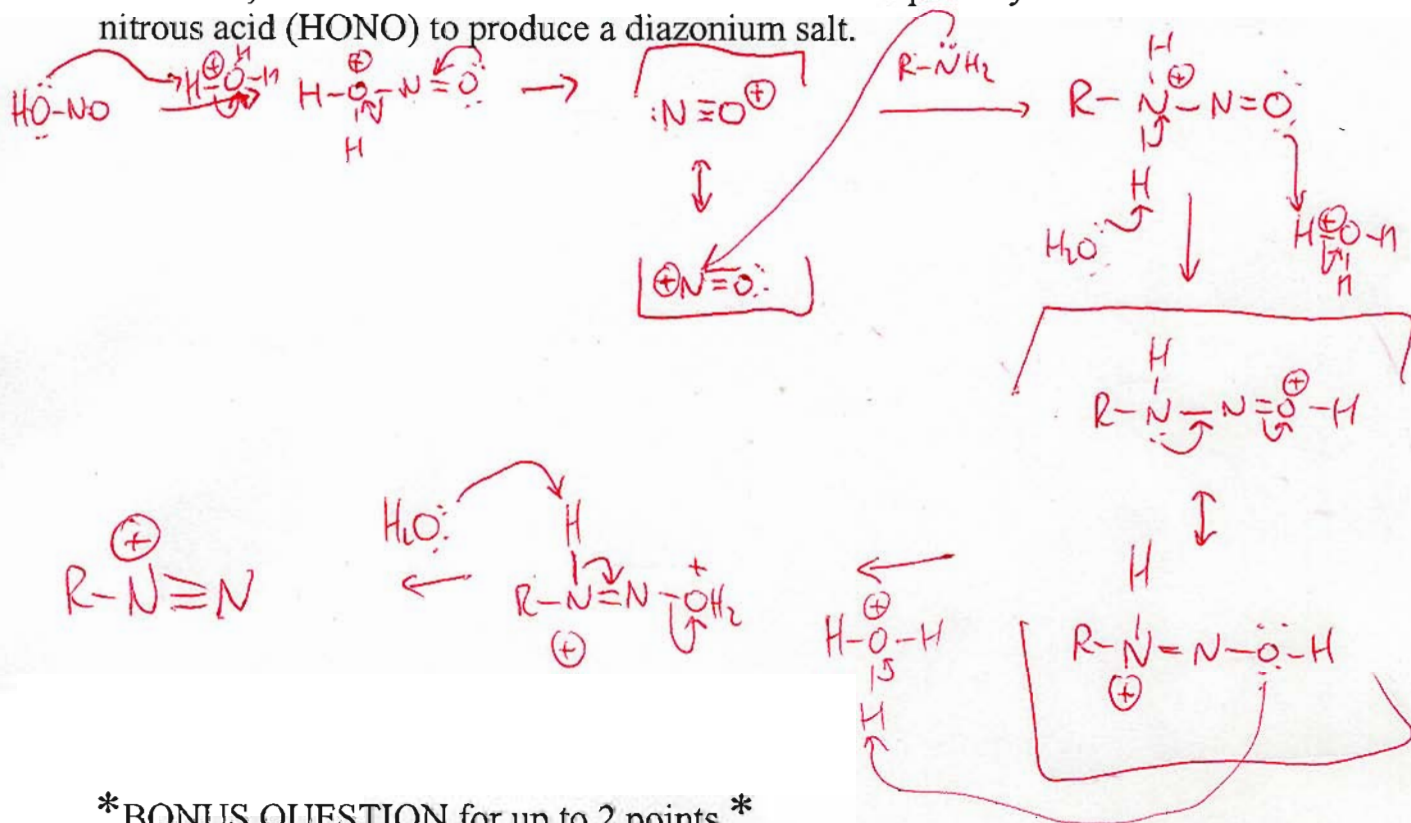
(17) Nitrile,  $R-CN$



(18) Isocyanate,  $RNCO$



19 and 20) Draw the mechanism for the reaction of a primary amine with nitrous acid (HONO) to produce a diazonium salt.



**\*BONUS QUESTION for up to 2 points \***

For  $\frac{1}{2}$  point each, name the legal and illegal compounds I talked about in lecture at the start of Ch 19.

Amphetamine, methamphetamine, Ritalin, MDMA, ecstasy, phedrine, deppamine, ...