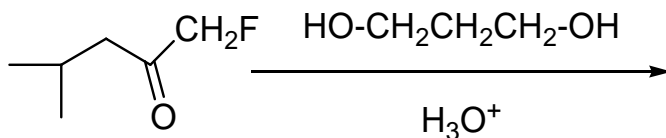


NAME: \_\_\_\_\_

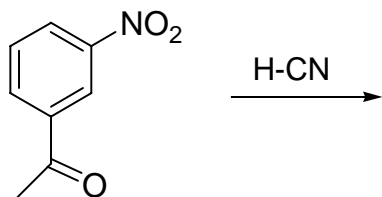
To **not** have your graded script placed outside my office please check this box **(1-10) Are True or False:**

- 1) Ketones can undergo nucleophilic addition reactions.
- 2) Amines can act as nucleophiles because of the nitrogen atom which has a lone pair of electrons.
- 3) Amines can act as bases because of the nitrogen atom which has a lone pair of electrons.
- 4) Ketones can undergo condensation reactions.
- 5) Wittig reactions form new C=C bonds.
- 6) An azide ion contains 4 nitrogens.
- 7) Diazonium salts contain two nitrogens, and one of them is positively charged.
- 8) Cyclic acetals are formed when a diol reacts with a carbonyl compound under acidic conditions.
- 9) Hoffman eliminations form a new  $\pi$  bond.
- 10) Aldehydes are more sterically hindered than ketones.

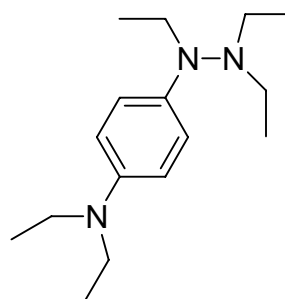
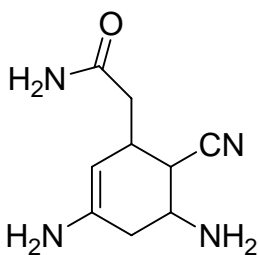
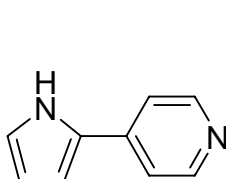
11)



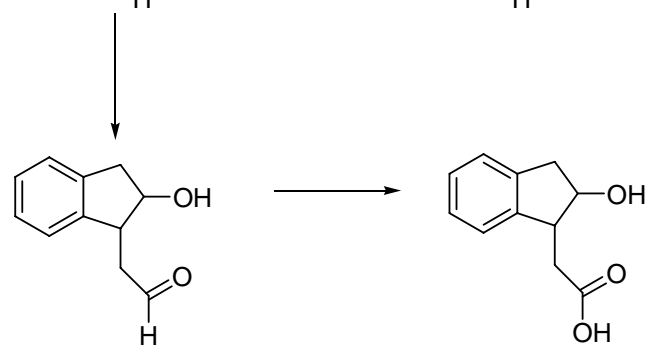
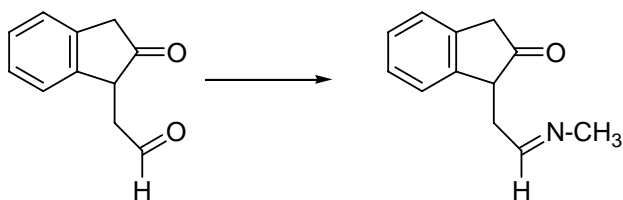
12)



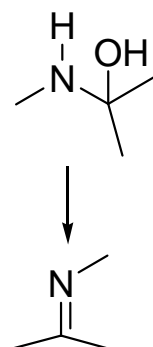
13-15) Circle the *most basic nitrogen* in each molecule.



16-18) Give reagents for the following transformations.

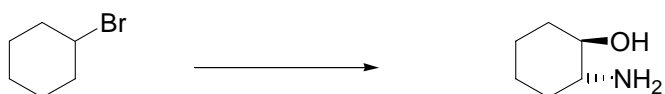


19-20) Draw the mechanism for the acid catalyzed dehydration of a carbinolamine into an imine (which goes through an *intermediate cation*).



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

Propose a reaction scheme to afford this transformation.



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

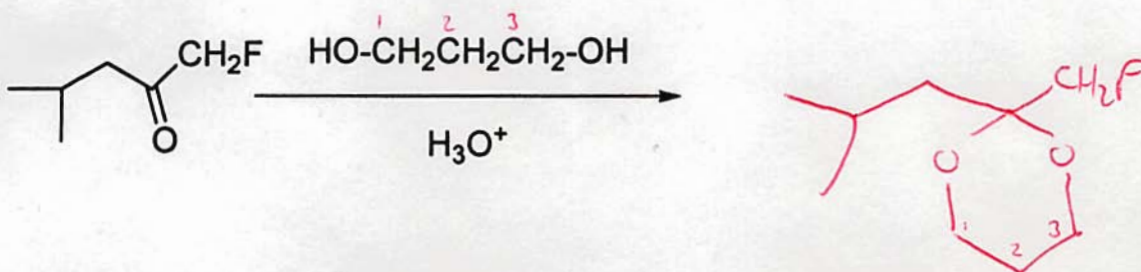
AMWJE WHAT I SAY ✓

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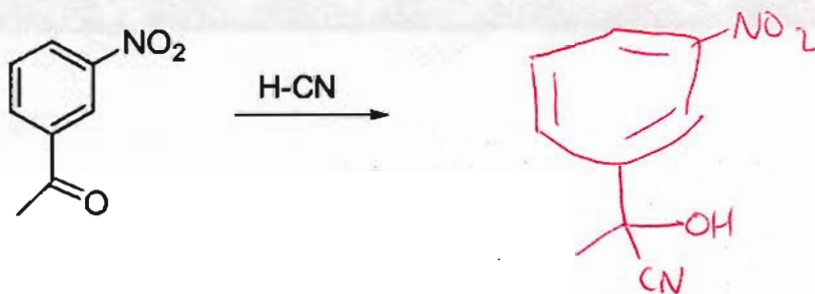
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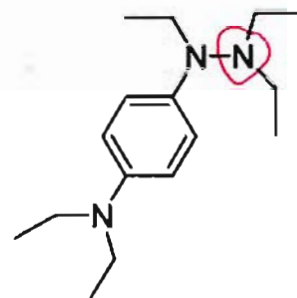
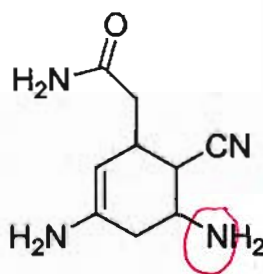
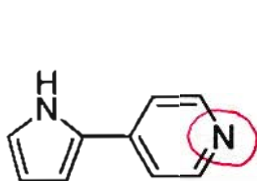
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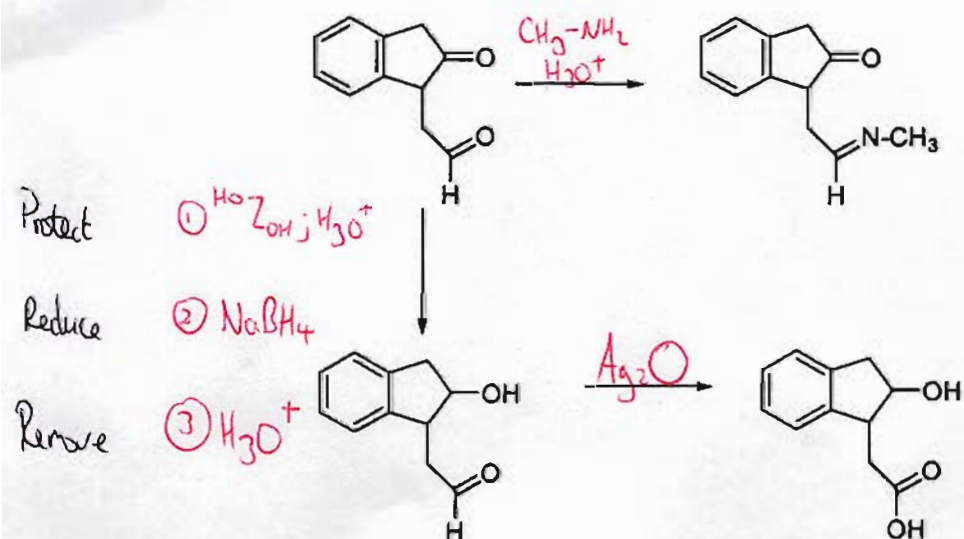
12)



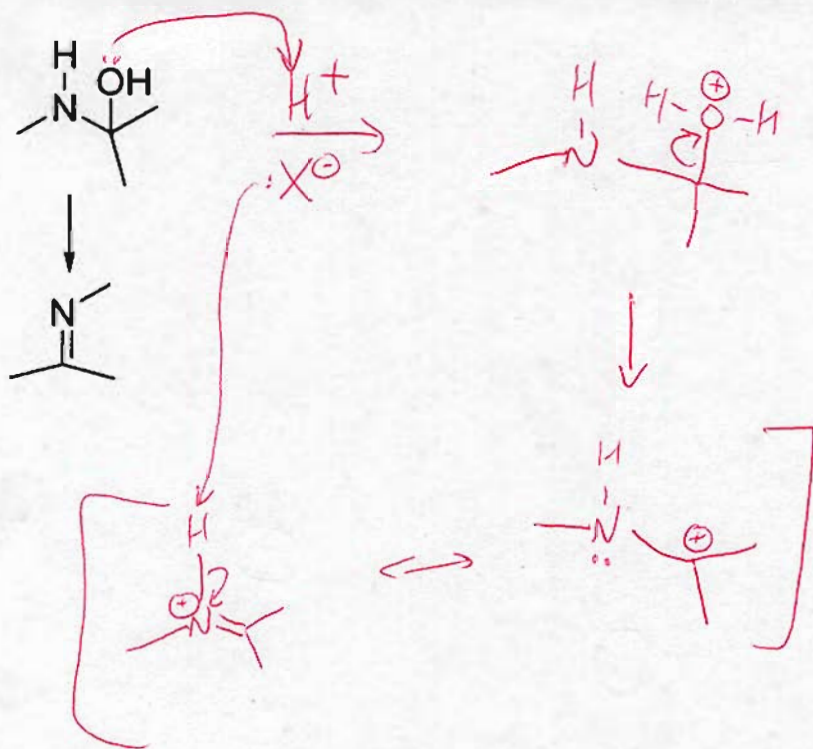
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