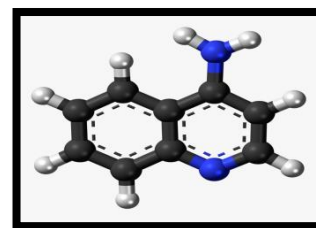


National Institute of Open Schooling

Senior Secondary Course: Chemistry

Chapter- 28 (Compounds of Carbon Containing Nitrogen)

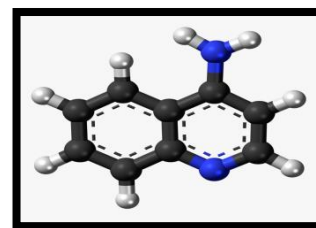


1. Raam and Shyam took organic compound synthesis as their chemistry project. They first mix benzene with nitric acid in the presence of sulfuric acid, which forms nitrobenzene. Nitrobenzene can then be transformed into aniline and aniline can be mixed with nitrous acid in the presence of hydrochloric acid to form the benzenediazonium chloride molecule. Raam wanted to store it and synthesize dye from it next day but Shyam said we can store it and need to use immediately after preparation. Write the chemical equation for the given reaction. Whom do you think is right and why?
2. A 1<sup>o</sup> amine RNH<sub>2</sub> can be reacted with CH<sub>3</sub>-X to get secondary amine R- NHCH<sub>3</sub> but the only disadvantage is that 3<sup>o</sup> amine and 4<sup>o</sup> ammonium salts are also obtained as side products. Can you suggest a method where RNH<sub>2</sub> forms only 2<sup>o</sup> amine?
3. Dyes are an important class of organic compounds. A class of organic compounds containing nitrogen are used as a starting material for the manufacture of azo dyes. It reacts with nitrous acid to form diazonium salt, which can undergo coupling reaction to form azo compound. Low molecular weight compounds are toxic, and some are easily absorbed through the skin. Many higher molecular weight compounds are, biologically, highly active. Identify the the compounds and write the value associated with it.
4. A solution contains 1 g mol each of p-toluenediazonium chloride and p-nitrophenyldiazonium chloride. To this 1 g mol of alkaline solution of phenol is added. Predict the major product. Explain your answer. While performing this chemical reaction Seeta utilized resources as minimum as possible. Why did She do so, justify your answer.
5. Creatinine (a chemical waste molecule that is generated from muscle metabolism) is a break-down product of creatine phosphate in muscle, and is usually produced at a fairly constant rate by the body. It belong to amine group. Its presence can be tested in our blood and urine. Does this test help us to be aware of our health? Explain.
6. Arrange the following in increasing order of basic strength :  
C<sub>6</sub>H<sub>5</sub>NH<sub>2</sub>, C<sub>6</sub>H<sub>5</sub>NHCH<sub>3</sub>, C<sub>6</sub>H<sub>5</sub>N(CH<sub>3</sub>)<sub>2</sub>
7. Give the chemical tests to distinguish between the following pairs of compounds :  
(i) Ethyl amine and Aniline

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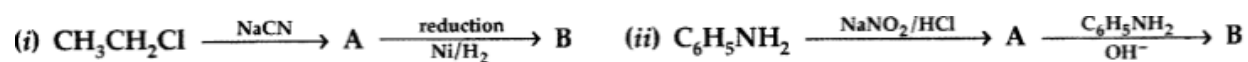
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(ii) Aniline and Benzylamine

8. Identify A and B in each of the following processes :

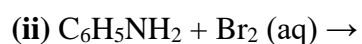
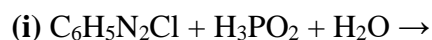


9. Describe the following giving the relevant chemical equation in each case :

(i) Carbylamine reaction

(ii) Hofmann's bromamide reaction

10. Complete the following reaction equations :



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