

St. Mary's School, Dwarka
Holiday Homework
Class XII
Subject: Chemistry
Week 4
Worksheet 4

Objective:

- Ø Revision of concepts
- Ø Application of the concepts to real life situations.
- Ø Skills to carry out research work and develop scientific aptitude

Instructions:

- *Neatly write all the answers in your science notebook.
- *Attempt the questions keeping in mind the weightage of each question.
- *Assignment 'Summer Holiday Homework' will be created on TEAMS. PDF of handwritten work should be uploaded on it

- :-**
- Q1. Illustrate the Gabriel phthalimide synthesis. 1
- Q2. Give chemical equations for the conversions of Nitrobenzene to benzoic acid. 1
- Q3. Account for the following: 2
- (i) Electrophilic substitution in aromatic amines takes place more readily than benzene.
 - (ii) Nitro compounds have higher boiling points than hydrocarbons having almost same molecular mass.
- Q4. (a) Write the product in the following reaction 2
- $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CN} \xrightarrow{(1) \text{DIBAL-H} (2) \text{H}_2\text{O}}$
- (b) How can you distinguish between propanal and propanone ? 2
- Q5. (a) Why is benzene diazonium chloride not stored and used immediately after its preparation? 2
- (b) Diazonium salts of aromatic amines are more stable than those of aliphatic amines. Explain.
- Q20. Vedanta is a student of Chemistry. One day, his supervisor has sent him to perform an experiment for the preparation of primary and secondary amines using alkyl halide as a starting material. He started the experiment and completed the reaction properly but he did not get the good yield of primary and secondary amines. He choose the another method and found the desired result.
- Answer the following questions.
- (i) Which type of reaction was going to perform by Vedanta ?
 - (ii) Write all the possible products of the above reaction.
 - (iii) Can you choose more precise method for the preparation of primary amine as a product mainly ? 3
- Q21. Write short note on the following : 3
- (i) Carbylamine reaction
 - (ii) Hoffmann's bromide reaction
 - (iii) Coupling reaction

- Q24. (a) Write the chemical equation for the reaction involved in cannizzaro reaction.
 (b) Draw the structure of semicarbazone of ethanal
 (c) Why pka of F-CH₂COOH is lower than that of Cl-CH₂COOH 3
- Q25. Given reasons :
 (i) Acetylation of aniline reduces its activatino effect.
 (ii) CH₃NH₂ is more basic than C₆H₅NH₂
 (iii) Although -NH₂ group is o/p directing , yet aniline on nitration gives a significant amount of m-nitroaniline. 3
- Q19. Arrange the following :
 (i) In decreasing order of pK_b values :
 C₂H₅NH₂, C₆H₅NHCH₃, (C₂H₅)₂NH and C₆H₅NH₂
 (ii) In increasing order of basic strength :
 (a) Aniline, p-nitroaniline and p-toluidine
 (b) C₆H₅NH₂, C₆H₅NHCH₃, C₆H₅CH₂NH₂
 (iii) In decreasing order of basic strength :
 C₆H₅NH₂, C₆H₅N(CH₃)₂, (C₂H₅)₂NH, CH₃NH₂
 (iv) Decreasing order of basic strength in gas phase :
 C₂H₅NH₂, (C₂H₅)₂NH, (C₂H₅)₃N and NH₃
 (v) Increasing order of boiling point :
 C₂H₅OH, (CH₃)₂NH, C₂H₅NH₂ 5

