

HOLIDAY HOME WORK
CLASS – XII
SUBJECT - CHEMISTRY

Investigatory Project as suggested by CBSE for class XII:

- Choose the topic of your choice.
 - It should be an investigatory project with proper result and conclusion and its significance in our daily life.
 - The project need to be neatly written on the coloured pastel sheets.
 - The contents of the project report are as follows
1. Name of the project
 2. Acknowledgement
 3. Certificate
 4. Index
 5. Theory
 6. Procedure
 7. Observations and calculations
 8. Conclusion
 9. Significance
 10. Bibliography

Assignment (Chapters 10,11,12,13)

Assignment needs to be done in a separate HW copy and to be submitted by 6 July 2019. This assignment consists of questions which are important and frequently asked in the Board exam. It is a practice for ES-II.

1 mark Questions

Distinguish between the following set of organic compounds:

1. Ethanol and Phenol
2. Ethanol and Propanol
3. Propanol and Propan-2-ol

4. Propanal and Acetone
5. Propanone and Pentan-3-one
6. Benzaldehyde and ethanal
7. Aniline and N- Methylaniline
8. Aniline and ethanamine

Write a short note on the following name reactions:

- i) Finkelstein reaction
- ii) Swarts reaction
- iii) Sandmeyer reaction
- iv) Wurtz Fittig reaction
- v) Fittig Reaction
- vi) Williansons Synthesis of Ethers
- vii) Reimer Tiemann reaction
- viii) Kolbe's reaction
- ix) Etard Reaction
- x) Gatterman Koch reaction
- xi) Rosenmunds reduction
- xii) Stephens reduction
- xiii) Tollens test
- xiv) Fehling's test
- xvi) Haloform reaction
- xv) Aldol Condensation
- xvi) Cannizaro's reaction
- xvii) Wolff Kishner reaction
- xviii) Clemmensen's reduction
- xix) HVZ reaction
- xx) Decarboxylation Reaction
- xxi) Kolbe's Electrolytic method to convert carboxylic acids in to alkanes
- xxii) Diazotisation reaction
- xxiii) Gatterman's reaction
- xxiv) Gabriel Phthalimide synthesis

xxv) Coupling reaction

xxvi) Hinsberg's Test

xxvii) Carbylamine test

3 marks Questions

- Why does SN_1 reaction result in racemisation?
 - Why does SN_2 reaction result in inversion of configuration?
 - Treatment of alkyl halides with aqueous KOH leads to the formation of alcohols but in the presence of alcoholic KOH alkenes are major products. Why?
- Out of $C_6H_5CH_2Cl$ AND $C_6H_5CHClC_6H_5$, which is more easily hydrolysed by aq KOH and why?
 - Upon reaction with KNO_2 haloalkanes form nitrites but with $AgNO_2$ nitroalkanes are formed. Why?
 - Upon reaction with KCN haloalkanes form nitriles but with AgCN isonitriles are formed. Why?
- Why do allylic and benzylic halides prefer to undergo SN_1 Reaction?
 - Why are phenols more acidic than alcohols?
 - With aq Br_2 phenols undergo tribromination while with Br_2/CS_2 monobromination product is formed. Why?
- Preparation of ethers by acid dehydration of secondary and tertiary alcohols is not a suitable method. Why?
 - Why is the boiling point ethanol more than that of methoxymethane?
 - Ethers possess dipole moment even if alkyl radicals in the molecule are identical. Why?
- Out of Benzaldehyde and propanal, which is more reactive towards nucleophilic addition reactions? Why?
 - Why is $NaHCO_3$ used in the purification of aldehydes and ketones?
 - Cyclohexane forms cyanohydrins in good yield but 2,2,6-trimethylcyclohexane does not. Why?
- There are two $-NH_2$ groups in semicarbazide. However only one is involved in the formation of semicarbazones.

- ii) During preparation of esters from a carboxylic acid and an alcohol in the presence of an acid catalyst, the water or ester should be removed as soon as it is formed. Why?
 - iii) Why are carboxylic acids stronger acids than Phenols?
7. I) P_{K_B} of aniline is more than that of methylamine. Why?
- ii) 2. Ethylamine is soluble in water whereas aniline is not. Why?
 - iii) 3. Methylamine in water reacts with Ferric chloride to precipitate hydrated ferric oxide. Why?
8. I). Although amino group is O- and p- directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline. Why?
- ii) Aniline does not undergo Friedel Crafts reaction. Why?
 - iii) 6. Diazonium salts of aromatic amines are more stable than those of aliphatic amines. Why?
9. Gabriel phthalimide synthesis is preferred for synthesizing primary amines. Why?

5 Marks Questions:

An organic compound A (C_2H_6O) reacts with sodium to form a compound B with the evolution of H_2 and gives a yellow compound C when treated with iodine and NaOH. When treated with conc H_2SO_4 at 413K, it gives a compound D ($C_4H_{10}O$) which on treatment with conc HI at 373K gives E. D is also obtained when B is heated with E Identify A, B, C, D and E and write equations for the reactions involved.