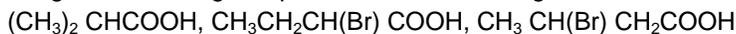


Chemistry Worksheet

C.B.S.E. - XII

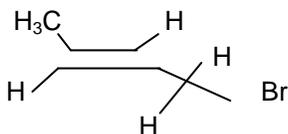
1. Write the IUPAC name of the following compound:
$$\begin{array}{ccccccc} \text{H}_3\text{C} & -\text{CH} & -\text{CH}_2 & -\text{CH} & -\text{CH} & -\text{CH}_2\text{OH} \\ & | & & | & | \\ & \text{CH}_3 & & \text{OH} & \text{CH}_3 \end{array}$$

2. Arrange the following compounds in an increasing order of their acid strengths:



3. Explain as to why haloarenes are much less reactive than halo-alkanes towards nucleophilic substitution reactions.

4. (a) State the IUPAC name of the following compound:



(b) Complete the following chemical equation: $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2 + \text{HBr} \xrightarrow{\text{peroxide}} \dots\dots\dots$

5. Describe the following giving a suitable example in each case: (a) Decarboxylation (ii) Cannizzaro's reaction

6. State reasons for the following: (a) Monochloroethanoic acid has a higher pKa value than dichloroethanoic acid.

(b) Ethanoic acid is a weaker acid than benzoic acid.

7. Write the IUPAC name of the following compound:
$$\text{CH}_3 - \text{O} - \text{CH}_2 - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_3$$

8. Draw the structure of the compound whose IUPAC name is 4 - Chloropentan 2-one.

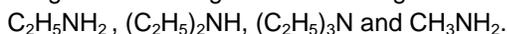
9. Write two main functions of carbohydrates in plants.

10. Write one chemical reaction each to illustrate the following:-

(i) Hofmann's bromoamide reaction (ii) Gabriel phthalimide synthesis. (iii) Carbylamine reaction

11. (i) Arrange the following in an increasing order of basic strength in water: $\text{C}_6\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$, $(\text{C}_2\text{H}_5)_3\text{N}$ and NH_3 .

(ii) Arrange the following in an increasing order of basic strength in gas phase:



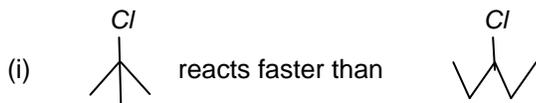
12. (a) Name the reagents and write the chemical equations for the preparation of the following compounds by Williamson's synthesis: (i) Ethoxybenzene (ii) 2- Methyl-2-methoxypropane.

(b) Why do phenols not give the protonation reaction readily ?

13. What happens when D-glucose is treated with the following reagents? (i) HI (ii) Bromine water (iii) HNO_3

14. Mention one use each of the following drugs: (i) Ranitidine (ii) Paracetamol (iii) Tincture of iodine

15. Account for the following:



(ii) The treatment of an alkyl chloride with aqueous KOH leads the formation of an alcohol whereas in the presence of alcoholic KOH, alkene is the major product.

16. Give reasons of the following :- (i) m-aminophenol is a stronger acid than o-aminophenol.

(ii) Alcohols act as weak bases.

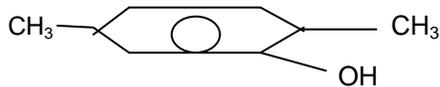
17. (a) Distinguish between homopolymers and copolymers. Give one example of each.

(b) Is $(-\text{CH}_2-\text{CH}(\text{C}_6\text{H}_5)-)_n$ a homopolymers or a copolymer? Why?

18. Give reasons for the following: (a) Propanol has higher boiling point than that of the hydrocarbon butane.

(b) Preparation of ether by acid dehydration of secondary and tertiary alcohols is not a suitable method.

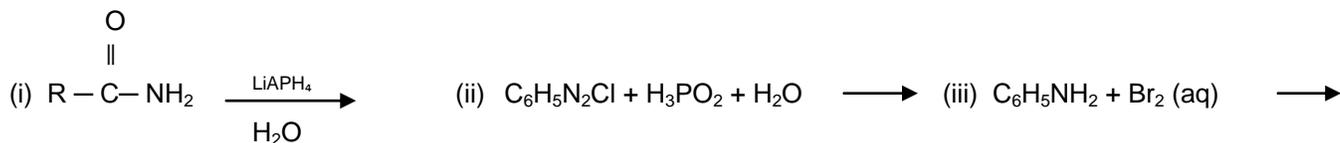
19. Account for the following: (i) Aniline does not undergo Friedel - Crafts Reactions.
(ii) Aliphatic amines are stronger bases than aromatic amines.
20. Give one chemical test each to distinguish between the following pairs of compounds:
(a) Ethyl amine and aniline (b) Aniline and N – methylaniline.
21. What are essential and non-essential amino acids? Give one example of each type.
22. Mention the type of linkages responsible for the formation of the following:
(i) Primary structure of proteins. (ii) Cross-linking of polypeptide chains (iii) α - helix formation (iv) β - sheet structure.
23. (a) Write the IUPAC name of the following:



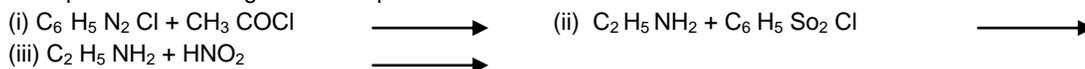
- (b) Give reasons for the following: (i) Phenol is a stronger acid than alcohol.
(ii) Alcohols are comparatively more soluble in water than the corresponding hydrocarbons.
24. (a) What are Antihistamines and how do they act? Give an example.
(b) Mention the name of a substance which can be used both as an antiseptic as well as a disinfectant.
25. Which ones in the following pairs of substances undergoes S_N1 substitution reaction faster and Why?



27. Explain what is meant by: (i) a peptide linkage (ii) a glycosidic linkage
28. Draw the structures of the monomers of the following polymers: (i) Teflon (ii) Polythene.
29. What are following substances? Give one example of each type:
(i) Antacid (ii) Nonionic detergents (iii) Antiseptics
30. Write the structural formula of 1- phenylpentan-1-one.
31. Name the four bases present in DNA. Which one of these is not present in RNA?
32. Complete the following reaction equations:



33. Complete the following reaction equations:



34. Suggest a possible mechanism for the following reactions: $n - \text{BuBr} + \text{KCN} \longrightarrow n - \text{BuCN}$.
35. Suggest a possible reason for the following observations:
(i) The order of reactivity of haloalkanes is $\text{RI} > \text{RCI} > \text{RBr}$.
(ii) Neopentyl chloride $(\text{CH}_3)_3\text{CCl}$ does not follow S_N2 mechanism.
(iii) Ether have low boiling points.
36. (a) What is the structural differences between a nucleoside and a nucleotide?
(b) The two strands in DNA are not identical but are complementary. Explain.
37. What are biodegradable polymers? Give an example of such a polymer and mention its uses.
38. An organic compound (A) on treatment with acetic acid in the presence of sulphuric acid produces an ester (B).
(A) on mild oxidation gives (C). (C) with 50% KOH followed by acidification with dilute HCl generates (A) and (D),
(D) with PCl_5 followed by reaction with ammonia gives (E). (E) on dehydration produces hydrocyanic acid.
Identify the compounds A,B,, C, D and E.
39. Enumerate the reactions and facts of D- glucose which cannot be explained by its open chain structure.
40. Compound (A), $\text{C}_6\text{H}_{12}\text{O}_2$ on reduction with LiAlH_4 yields two compounds 'B' and 'C'. The compound 'B' on oxidation gave 'D' which on treatment with aqueous alkali and subsequent heating furnished 'E'. The latter on catalytic hydrogenation gave 'C'. The compound 'D' on further oxidation gave CH_3COOH . Deduce the structures of A, B, C, D and E.

