

SARALA BIRLA PUBLIC SCHOOL

Birla Knowledge City, Mahilong, Ranchi
CLASS-XII (2020-21)



Sub: Chemistry Assignment-2

- 1 Draw the structural formula of 2-methylpropan-2-ol molecule.
- 2 Draw the structure of hex-1-en-3-ol compound.
- 3 Draw the structure of 2, 6-dimethylphenol.
- 4 Write the structure of the following compound: 2-methyl-2-ethoxypentane
- 5 How is t-butyl alcohol obtained from acetone?
- 6 How are following conversions carried out?
(i) Propene to Propan-2-ol (ii) Ethyl chloride to Ethanal
- 7 Name the reagents used in the following reactions:
(i) Bromination of phenol to 2,4,6-tribromophenol
(ii) Butan-2-one to Butan-2-ol
(iii) Friedel–Crafts alkylation of anisole
(iv) Oxidation of primary alcohol to carboxylic acid.
- 8 Write chemical equations when:
(i) ethyl chloride is treated with aqueous KOH.
(ii) chlorobenzene is treated with CH_3COCl in presence of anhydrous AlCl_3 .
- 9 Give one chemical test each to distinguish between the following pairs of compounds :
(i) Phenol and Benzoic acid
(ii) 1-Propanol and 2-Propanol
- 10 How will you distinguish between the following pairs by chemical reactions?
(i) CH_3OH and $\text{C}_2\text{H}_5\text{OH}$
(ii) Phenol and methanol
(iii) 1-Propanol and 2-methyl-2-propanol
(iv) Ethanol and 1-propanol?
- 11 Write the reactions and the conditions involved in the conversion of :
(a) Propene to 1-Propanol (b) Phenol to Salicylic acid
- 12 How are the following conversions carried out? (Write the reactions and conditions in each case) :
(i) Ethanol to 2-propanol
(ii) Phenol to Acetophenone
- 13 How are following conversions done?
(i) 1-Propanol to 1-Bromopropane
(ii) 1-Chloropropane to 1-Propanol
(iii) 2-Methyl-1-pentene to 2-Methyl-2-pentanol
(iv) Phenol to Phenyl ethanoate.
- 14 Write steps to carry out the conversion of phenol to aspirin.
- 15 Arrange the following compounds in increasing order of acidity and give a suitable explanation.
Phenol, o-nitrophenol, o-cresol

The presence of electron withdrawing group increases acidic strength, whereas presence of electron releasing group decreases acid strength.

- 16 Give reasons for the following:
(i) Phenol is more acidic than methanol.
(ii) The C—O—H bond angle in alcohols is slightly less than the tetrahedral angle ($109^{\circ}28'$).
(iii) $(\text{CH}_3)_3\text{C—O—CH}_3$ on reaction with HI gives $(\text{CH}_3)_3\text{C—I}$ and $\text{CH}_3\text{—OH}$ as the main products and not $(\text{CH}_3)_3\text{C—OH}$ and $\text{CH}_3\text{—I}$.
- 17 Account for the following:
(i) The boiling point of ethanol is higher than that of methanol.
(ii) Phenol is a stronger acid than an alcohol.
(iii) The boiling points of ethers are lower than isomeric alcohols.
- 18 Account for the following:
(i) The boiling points of alcohols decrease with increase in branching of the alkyl chain.
(ii) Phenol does not give protonation reaction readily.
(iii) Phenylmethyl ether reacts with HI to give Phenol and Methyl iodide and not Iodobenzene and Methyl alcohol.
- 19 How would you convert the following:
(i) Phenol to benzoquinone
(ii) Propanone to 2-methylpropan-2-ol
(iii) Propene to propan-2-ol
- 20 Give reasons:
(i) p-nitro phenol is more acidic than p-methyl phenol.
(ii) Bond length of C—O bond in phenol is shorter than that in CH_3OH .
(iii) $(\text{CH}_3)_3\text{CBr}$ on reaction with $\text{CH}_3\text{O}^-\text{Na}^+$ gives alkene as major product and not an ether.
- 21 How do you convert the following:
(i) Aniline to phenol. (ii) Prop-1-ene to propan-1-ol
(iii) Anisole to 2-methoxy toluene
- 22 What happens when:
(i) Ethanol is treated with Cu at 573 K.
(ii) Phenol is treated with $\text{CH}_3\text{COCl}/\text{anhydrous AlCl}_3$
(iii) Ethyl chloride is treated with NaOCH_3 ?
- 23 How do you convert the following:
(i) Phenol to 2-hydroxy acetophenone (ii) Ethyl chloride to methoxy ethane,
(iii) Acetone to 2-methyl propan-2-ol.
- 24 In the following question a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.
(a) Assertion and reason both are correct and reason is correct explanation of assertion.
(b) Assertion and reason both are wrong statements.
(c) Assertion is correct statement but reason is wrong statement.
(d) Assertion is wrong statement but reason is correct statement.
(e) Both assertion and reason are correct statements but reason is not correct explanation of assertion. Assertion: Bond angle in ethers is slightly less than the tetrahedral angle.
Reason: There is a repulsion between the two bulky (—R) groups.
- 25 Diethyl ether has dipole moment because they are bent molecule. [True/False]