Chemistry Practical Class 12 Test for the Functional Groups Present in Organic Compounds (Unsaturated, alcoholic, phenolic, aldehydic, ketonic, carboxylic and primary amino groups) Viva Questions with Answers

Q1. What is a functional group?
Answer: It is the group of atoms in a molecule that describes the chemical property of the molecule.

Q2. Give examples of some functional groups?
Answer: Hydroxyl (OH), carbonyl (CO), carboxyl (COOH) and amino (NH_2) are examples of some functional groups.

Test for Unsaturation

Q3. Name some tests used to test unsaturation in organic compounds?
Answer: Bromine water test and Baeyer's reagent test detect unsaturation in organic compounds.

Q4. How does the bromine water test detect the presence of unsaturation?
Answer: There won't be any change if a saturated organic compound is added to the bromine water. However, it will decolourise if an unsaturated organic compound is added to the bromine water.
Saturated organic compound + Br_2 → No Reaction (No colour change)
Unsaturated organic compound + Br_2 → Reaction will occur (Decolourise)

Q5. What is Baeyer's reagent?
Answer: Baeyer's reagent is an alkaline potassium permanganate solution. It is useful in detecting unsaturation in organic compounds. It decolourises in the presence of unsaturated organic compounds.

Q6. Are alkynes acidic? If yes, then will they turn blue litmus red?
Answer: Alkynes are acidic, but they don't turn blue litmus red.

Q7. Do aromatic compounds give Bromine water or Baeyer's reagent test?
Answer: No, aromatic compounds do not give Bromine water or Baeyer's reagent test

Q8. What is the primary difference between saturated and unsaturated compounds?

Answer: The primary difference between saturated and unsaturated compounds is that saturated compounds contain only a single bond between carbon atoms. In contrast, unsaturated compounds have at least one double or triple bond between carbon atoms.

Q9. Does phenol decolourise bromine water?
Answer: No, phenol does not decolourise bromine water.

Q10. What type of reaction takes place between alkenes and bromine water?
Answer: An addition reaction takes place between alkenes and bromine water.

Also, Read Tests for Unsaturation

Test for Alcoholic (R-OH) Group

Q11. Which is more acidic: alcoholic or phenolic?
Answer: Phenolic group are more acidic than the alcoholic group.

Q12. Why do you dry alcohol before carrying out the sodium metal test?
Answer: Alcohols are dried before carrying the sodium metal test because sodium metal reacts with the moisture explosively and liberates hydrogen gas. It may also catch fire.

Q13. What is Lucas's reagent?
Answer: Lucas reagent is anhydrous zinc chloride and concentrated hydrochloric acid solution. It is predominantly used to distinguish between primary, secondary and tertiary alcohols.

Q14. Name a test useful in distinguishing methanol and ethanol?
Answer: The iodoform test helps determine methanol and ethanol. Ethanol gives a yellow precipitate with the iodoform test. In contrast, methanol does not give an iodoform test.

Q15. What is the primary use of Lucas's reagent?
Answer: Lucas's reagent is primarily used to classify low molecular weight alcohols.

Also, Read Test for Alcoholic (R-OH) Group

Test for Phenolic Group

Q16. Which is more acidic: carboxylic or phenolic?
Answer: Carboxylic group are more acidic than the phenolic group.

Q17. How will you distinguish phenol and aniline?
Answer: Phenols are soluble in an aqueous sodium hydroxide solution, whereas anilines are not. Further, anilines are soluble in dilute hydrochloric acid solution, whereas phenols are not.

Q18. Name the reagent used in the phthalein dye test.
Answer: Phthalic anhydride is used as a reagent in the phthalein dye test.

Q19. Name a test useful in detecting the presence of the phenolic group?
Answer: Libermann's test is useful in detecting the presence of a phenolic group.

Q20. While preparing ferric chloride solution, the brown precipitate formed is of which compound?
Answer: While preparing ferric chloride solution, the brown precipitate formed is of ferric hydroxide.

Q21. Name the intermediate compound formed in the phthalein dye test?
Answer: The intermediate compound formed in the phthalein dye test is phenolphthalein.

Q22. What kind of reaction occurs when phenol is treated with bromine water?
Answer: Aromatic electrophilic substitution reaction occurs when phenol is treated with bromine water.

Also, Read Test for Phenolic Group

Test for Aldehydic Group

Q23. Name a test useful in determining the presence of the carbonyl group?
Answer: 2, 4-dinitrophenylhydrazine test or 2, 4- DNP test helps determine the presence of the carbonyl group.

Q24. What is Tollen's reagent?
Answer: Tollen's reagent is an ammonical silver nitrate solution. It is valuable in determining the presence of aldehyde and alpha-hydroxy ketone.

Q25. What is the primary use of schiff's reagent?
Answer: Schiff's reagent is primarily used to detect the presence of an aldehydic group.

Q26. What is Rochelle's salt?
Answer: Rochelle's salt is a double salt of tartaric acid. It is a primary ingredient of the fehlings solution test.

Q27. Name a test used to distinguish the aldehydic and ketonic groups.
Answer: Tollen's and Fehling's tests help determine aldehydic and ketonic groups.

Q28. What is Fehling's solution?
Answer: Fehling's solution is a mixture of copper sulphate and sodium hydroxide containing sodium potassium tartrate (Rochelle's salt).

Also, Read Tests for Aldehydes and Ketones

Test for Ketonic Group

Q29. Name a test used to distinguish the aldehydic and ketonic groups.
Answer: Tollen's and Fehling's tests help determine aldehydic and ketonic groups.

Q30. Name a test that helps in determining the presence of the carbonyl group?
Answer: 2, 4-dinitrophenylhydrazine test or 2, 4- DNP test helps determine the presence of the carbonyl group.

Q31. Name a test used to determine the presence of alpha-hydroxy ketone?
Answer: Tollen's reagent is used to determine the presence of alpha-hydroxy ketone.

Q32. What is Tollen's reagent?
Answer: Tollen's reagent is an ammonical silver nitrate solution. It is valuable in determining the presence of aldehyde and alpha-hydroxy ketone.

Q33. What is Fehling's solution?
Answer: Fehling's solution is a mixture of copper sulphate and sodium hydroxide containing sodium potassium tartrate (Rochelle's salt).

Q34. What is Rochelle's salt?
Answer: Rochelle's salt is a double salt of tartaric acid. It is a primary ingredient of the fehlings solution test.
Also, Read Tests for Aldehydes and Ketones

Test for Carboxylic Group

Q35. How will you distinguish between phenol and carboxylic acid?
Answer: Carboxylic acid reacts with sodium bicarbonate to liberate carbon dioxide gas, whereas phenols don't.

Q36. What causes a brisk effervescence in the sodium bicarbonate test?
Answer: Liberation of carbon dioxide gives a brisk effervescence in the sodium bicarbonate test.

Q37. Name a test useful in determining the presence of the carbonyl group?
Answer: 2, 4-dinitrophenylhydrazine test or 2, 4- DNP test helps determine the presence of the carbonyl group.

Also, Read Test for Carboxyl Group

Test for Primary Amino Group

Q38. Name a test used to distinguish hexylamine and aniline.
Answer: The dye test is used to distinguish hexylamine and aniline.

Q39. Name some tests used to determine primary, secondary and tertiary amines?
Answer: Nitrous acid test and carbyl amine test determines primary, secondary and tertiary amines.

Q40. How can you synthesise nitrous acid?
Answer: Nitrous acid is synthesised by reacting sodium nitrite with dilute hydrochloric acid below 5°C.

Q41. How will you distinguish phenol and aniline?
Answer: Phenols are soluble in an aqueous sodium hydroxide solution, whereas anilines are not. Further, anilines are soluble in dilute hydrochloric acid solution, whereas phenols are not.

Q42. In contrast to primary aromatic amines, primary aliphatic amines do not form stable diazonium salts. Why?
Answer: Primary aliphatic amines do not form stable diazonium salts because alkyl carbocation formed on the decomposition of diazonium salt is more stable than phenyl carbocation.

Q43. Why is an aniline a weaker base than ammonia?
Answer: Aniline is a soft base because lone pair of nitrogen is delocalised over the benzene ring and is not fully available for sharing.

Q44. Name a test used to distinguish ethylamine and diethylamine.
Answer: Hinsberg test is used to differentiate between ethylamine and diethylamine.

Q45. Why are diazonium chloride soluble in water?
Answer: Diazonium salt is an ionic crystalline solid. Thus, it is soluble in polar water.

Q46. How are isocyanides destroyed in the carbylamine test?
Answer: Isocyanides are eliminated by adding concentrated hydrochloric acid to the solution.

Q47. What is the name of the reagent used in the Hinsberg test?
Answer: Benzene sulfonyl chloride reagent is used in the Hinsberg test.

Also, Read Test for Amino Groups.