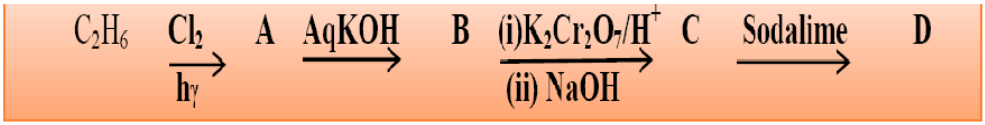
ORGANIC CHEMISTRY

1. The credit for synthesizing first organic compound in the laboratory went to

   a) Berzelius b) Wohler c) Kolbe d) Berthelot

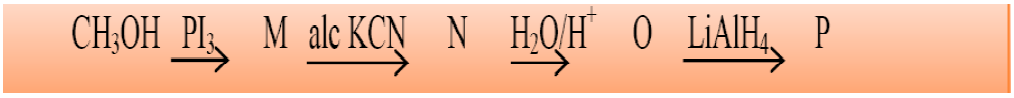
2. Methane can be converted to ethane by the reaction
   a) Chlorination followed by the reaction with alcoholic KOH.
   b) Chlorination followed by the reaction with aqueous KOH.
   c) Chlorination followed by the wurtz reaction.
   d) Chlorination followed by the decarboxylation reaction.

3. The product 'D' in the reaction is



   a)Ethane b) Methane c) Methanol d) Ethanol

4. Identify the product P in the reaction



   a)Methanol b) Ethanol c) Methanal d) Ethanal

5. Identify the product D in the reaction

   a)Ethanal b) Methanal c) Ethanol d) Methanol

6. Inductive effect involves
   a) Delocalization of σ Electron. b) Delocalization of π Electron
   c)Displacement of σ Electrons. d)Displacement of π Electrons.

7. The order of +I effect shown by H, CH3, C2H5, & C3H7 is
   a) $C_3H_7 > C_2H_5 > CH_3 > H$ b) $H > CH_3 > C_2H_5 > C_3H_7$
   c) $H > C_2H_5 > CH_3 > C_3H_7$ d) $C_3H_7 > C2H_5 > H > CH_3$

8. Which of the following represents the correct order of the activity in the given compounds
   a)$FCH_2COOH > CH_3COOH > BrCH_2COOH > ClCH_2COOH$
   b)$BrCH_2COOH > ClCH_2COOH > FCH_2COOH > CH_3COOH$
   c)$FCH_2COOH > ClCH_2COOH > BrCH_2COOH > CH_3COOH$
   d)$CH_3COOH > BrCH_2COOH > ClCH_2COOH > FCH_2COOH$

9. Which one of the following is the strongest acid.
   a)2-chloropentanoic acid b)3-chloropentanoic acid
   c)5-chloropentanoic acid d)4-chloropentanoic acid

10. Which statement is correct for Inductive effect
    a)It is permanent effect
    b)It is the property of single bond
    c)It cause permanent polarization in the molecule
    d)All are correct

11. Which of the following does not show Electromeric effect
    a)Alkene b)Ethers c)Aldehydes d)Ketones

12. When H+ approaches the multiple bond of alkene shows
    a)+M effect b)–M effect c)+E effect d)–E effect

13. Which statement is wrong for Electromeric effect
    a)It is temporary effect.
    b)It is property of Pi- Bond.
    c)It take place in the presence of attacking reagent.
    d) It is a permanent effect.

14. Which of the following has +R(resonance) effect.
    a) CN b) CHO c) NH_2 d) NO_2

15. Resonance effect involves
    a) Migration of hydrogen atom. b) Delocalization of σ Electrons.
    c) Delocalization of π Electrons. d) All are correct.

16. Which of the following pairs represents stereo-isomerism?
    a)Geometrical Isomerism and Linkage Isomerism.
    b)Geometrical Isomerism and Optical Isomerism.
    c)Structural Isomerism and Geometrical Isomerism.
    d)Chain Isomerism and Rotational Isomerism.

17. But-2-ene exhibits cis-trans isomerism due to
    a) Rotation around C_3—C_4 Sigma Bond
    b) Restricted rotation around C=C Bond
    c) Rotation around C_1—C_2 bond
    d) Rotation around C_2—C_3 double bond

18. The lowest alkene which can exhibit geometrical isomerism is
    a) Ethene b) Propene c) 1-butene d) 2-butene

19. Ordinary light is converted into plane polarized light by passing through a
    a)Nickel prism b)Glass Prism c)Nicol Prism d)Polarimeter

20. Optical activity is measured by
    a)Polarimeter b)Abbe's refractometer
    c)Spectrograph d)Radio carbon dating

21. An organic molecule necessarily shows optical activity if it
    a)Contains (Chiral / Asymmetric) Carbon atom
    b)Is non-planar.
    c)Is non super impossible on its mirror image.
    d)Is super impossible on its mirror image.

22. An organic molecule definitely shows optical activity if it
    a)Contains asymmetric carbon atoms
    b) is non-planar
    c) does not contain plane of symmetry
    d)is super impossible on its mirror image

23. Optical isomers which are mirror images of each other are called
    a)Enantiomers b)Diastereomers c)Tautomer d)Meso compounds

24. The conversion of enantiomer into racemic mixture is known as
    a)Resolution b)Racemisation c)Chirality d)Inversion

25. The process of separation of racemic mixture into + and – Enantiomers is called
    a)Racemisation b)Resolution
    c)Boiling Point d)Walden inversion

26. Which of the following is the chiral molecule
    a) CH_3Cl b) CH_2Cl_2 c) $CHBr_3$ d) CHClBrI

27. The hybridisation of carbon atom in cyclopropane is
    a) sp b) sp^2 c) sp^3 d) d^2sp^3

28. The general formula of Cycloalkane is
    a) C_nH_{2n} b) C_nH_{2n+2} c) C_nH_{2n-2} d) C_nH_{2n-4}

29. Most stable cycloalkane according to Baeyer's strain theory is
    a)Cyclobutane b)Cyclopentane c)Cyclohexane d)Cycloheptane

30. Angle strain = $\frac{1}{2}[109^0 28^1$ – bond angle in cycloalkane] which Cycloalkane has maximum angle strain.

    a)Cyclopropane b)Cyclobutane c)Cyclopentane d) Cyclohexane

31. The concept of strainless ring of cyclohexane & Cycloheptane was put forward by
    a)Baeyer b)Sachse c) Kekule d) Berzelius

32. When cyclohexane is poured in water, it floats because
    a)Cyclohexane is in boat form
    b)Cyclohexane is in chair form
    c)Cyclohexane is in crown form
    d)Cyclohexane is less denser than water.

33. The Least Energetic conformation of Cyclohexane is
    a)Chair Conformation b)Boat Conformation
    c)E, Z Form d)Cis Form

34. Benzene was discovered by
    a)Dalton b)Faraday c)Kekule d)Boyle

35. The number of Sigma & Pi-Bonds in a molecule of Benzene
    a) 6σ and 9π
    b) 9σ and 3π
    c) 12σ and 3π
    d) 6σ and 6π

36. The number of π-Electron in benzene molecule are
    a)4 b)3 c)5 d) 6

37. Benzene molecule is
    a)Trigonal b)Planar
    c)Tetrahedral d)Octahedral

38. The number of di-substituted product of benzene
    a)Two b)Three c)Four d)Five

39. Benzene does not give addition reaction even though it contain 3 double bonds because
    a) Double bond change their position rapidly
    b) Resonance lowers the energy of benzene molecule & leads to greater stabilization.
    c) Double bond in benzene are strong
    d) None of the above.

40. The overlapping orbitals in Benzene is of the type
    a) sp—sp
    b) p—p
    c) sp^3—sp^3
    d) sp^2—sp^2

41. The electrophile in the nitration reaction of benzene is
    a)Nitronium ion b)Nitrinium Ion
    c)Nitrite ion d)Nitrate ion

42. During the nitration reaction of benzene concentrated H_2SO_4 is used as
    a) Solvent b) Dehydrating agent
    c) Sulphonating agent d) Nitronium ion producer.

43. In benzene, all the six C—C bond have the same bond length because of
    a)Resonance b)Hybridization
    c)Isomerism d)Chain Isomerism

44. The electrophile in the sulphonation reaction is
    a) SO_2 b) SO_3 c) SO_3H d) SO_3^+

45. The function of anhydrous $AlCl_3$ in Friedal Craft's reaction is
    a) To absorb water
    b) To absorb HCl
    c) To produce attacking electrophile.
    d) To produce nucleophile.

46. Adding Chlorine to benzene in the present of anhydrous $AlCl_3$ is an example of
    a) Addition reaction
    b) Substitution reaction
    c) Elimination reaction
    d) Polymerisation reaction

47. In Benzene molecule the carbon atoms are inclined at an angle of
    a) 120° b) 180° c) 109° 28^1 d) 60°

48. Regarding benzene molecule, which of the following statement is wrong.
    a) It has six identical carbon atom
    b) It is an unsaturated compound .
    c) It is an unsaturated compound and answer tests for unsaturation.
    a) C—C bond length is identical.

49. Which one of the following is formed when benzene ring is attacked by the elctrophile.
    a) Carbon ion b) Carbocation
    c) Nucleophile d) Free-radical