

**Arts, Commerce and Science College, Bodwad**

**Question Bank**

**Class: S.Y.B.Sc.**

**Sem: III**

**Subject: Organic & Inorganic Chemistry (Chem-II)**

- Optical activity is shown by a molecule which-----
  - Contains at least 3 asymmetric centers
  - is asymmetric or dissymmetric as whole.**
  - has plane of symmetry.
  - has a center of symmetry.
- An asymmetric carbon atom has-----
  - one different atom or group.
  - two different atom or group.
  - three different atom or group.
  - four different atom or group.**
- In the complete rotation of butane from 0° to 360° the gauche conformation appear-----
  - Once
  - Twice**
  - Thrice
  - Four times.
- In structural representation of molecule the prefixes Z and E stands for -----
  - Zigle - Erythro
  - Zusammen – Estrogen
  - Zeigle - Erhard
  - Zusammen – Entgegen.**
- Racemic mixture is equimolar concentration -----
  - Enantiomers**
  - Diastereomers
  - Enantiomer and meso compound
  - None of these
- The priority sequence for the hydrogen isotopes is-----

- a)  $H > D > T$       b)  **$T > D > H$**       c)  $H > T > D$       d)  $D > T > H$

7. In the R-S notation, the prefixes R and S stands for -----

- a) Rectus-simiantus      b) **Rectus-sinister**  
c) Rotamer-simiantus      d) Rotamer-sinister.

8. -----is the most stable conformation of n-butane.

- a) Gauche      b) Fully eclipsed      c) **Anti or staggered**      d) Partially eclipsed.

9. The atoms or groups which are behind the plane of the paper are shown by -----

- a) Thick line      b) Normal lines      c) **Dotted lines**      d) Zig-zag lines

10. The prefixes used in the nomenclature of stereoisomer of oximes are -----

- a) Cis-trans      b) Z-E      c) **Syn-anti**      d) Eclipsed-Staggered.

11. Which of the following is not a projection formula.

- a) Newman      b) Wedge      c) Fischer      d) **Newton**

12. The light consisting of only one wavelength is called as.....light

- a) Polarized      b) **Monochromatic**      c) Visible      d) Invisible

13. The plane polarized light vibrates only in .....plane.

- a) **One**      b) two      c) Many      d) Does not vibrate

14. The instrument used to measure optical rotation is.....

- a) **Polarimeter**      b) Slit      c) Nicol prism      d) Microscope

15. The compound which contains chiral centre but, optically inactive is called.....

- a) Dextrorotatory      b) Levorotatory      c) Enantiomer      d) **Meso compound**

16. The stereoisomers which are not mirror images of each other are called as.....
- a) Epimers            b) Conformers            **c) Diastereomers**            d) None of these
17. Which of the following type of isomer contain similar group on same side of the double bond
- a) Cis**            b) Trans            c) Eclipsed            d) Staggered
18. The stereoisomers which can be interconverted by rotation of single bond are called..
- a) Configurational isomers            b) Geometrical isomers
- c) Conformational isomers**            d) Chain isomers
19. The isomers which differ in the position of substituent are called.....
- a) Position isomers**            b) Chain isomers            c) Functional isomers            d) Metamers
20. The most unstable conformation of cyclohexane is
- a) Boat            **b) Half chair**            c) Twist chair            d) Chair
21. Eclipsed bonds are seen in .....conformation of cyclohexane
- a) Boat**            b) Half chair            c) Twist chair            d) Chair
22. Chair-chair interconversion is possible by,
- a) stretching            b) bending            **c) ring flipping**            d) twisting
23. The boat conformation of cyclohexane is less stable due to.....hydrogens
- a) equatorial            b) axial            c) all            **d) flag-pole**
24. ....conformation of cyclohexane is free of angle & torsional strain
- a) Boat            b) Half chair            c) Twist chair            **d) Chair**
25. Dimethyl ether and ethyl alcohol are examples of .....isomerism
- a) Position            b) Chain            **c) Functional group**            d) Metamers

26. The angle between Hydrogen on near carbon and farther carbon is called.....  
a) **Dihedral angle**      b) rotational angle      c) rectangle      d) cross angle
27. The full form of CIP is  
a) **Cahn-Ingold-Prelog**      b) Cane-India-Pacific  
c) China-Indonesia-Paris      d) None of the above
28. The priority sequence is given on the basis of...  
a) Atomic size      **b) Atomic number**      c) Electronegativity      d) Energy
29. The elements of symmetry are useful to determine.....of molecule.  
a) reactivity      **b) symmetry**      c) polarizability      d) size
30. The carbon atom having four different substituents is called as.....  
a) **Chiral carbon**      b) Good carbon      c) Bad carbon      d) symmetric carbon
31. In polarimeter, sample is placed in.....  
a) Nicol prism      b) Source      c) Analyzer      **d) Polarimeter tube**
32. In Newman projection formula, front carbon atom is shown by a.....  
a) Circle      b) Ellipse      **c) Dot**      d) Line
33. Pyridine undergo electrophilic substitution reaction at position number-  
a) 2      **b) 3**      c) 4      d) 1
34. Furan, pyrrole and thiophene undergo substitution at \_\_\_\_position  
a) 1      **b) 2**      c) 3      d) 4
35. \_\_\_\_\_ is not a heterocyclic aromatic compound.  
a) Furan      b) Pyrrole      c) Thiophene      **d) Naphthalene**

36. \_\_\_\_\_ is a 6 membered heterocyclic compound.  
a) Furan                      b) Pyrrole                      c) Thiophene                      **d) Pyridine**
37. Furan on reaction with  $\text{CHCl}_3/\text{KOH}$  gives \_\_\_\_\_  
a) 2-acetyl furan                      **b) Furfural**                      c) 3-acetyl furan                      d) 2-chloro furan
38. Thiophene cannot be prepared from  
a) acetylene                      b) n-butane                      **c) ethylene**                      d) sodium succinate
39. Molecular formula of pyrrole is \_\_\_\_\_  
a)  **$\text{C}_4\text{H}_5\text{N}$**                       b)  $\text{C}_4\text{H}_4\text{N}$                       c)  $\text{C}_5\text{H}_5\text{N}$                       d)  $\text{C}_6\text{H}_6\text{N}$
40. Pyrrole on hydrogenation gives \_\_\_\_\_  
a) Piperidine                      b) 2-hydro pyrrole                      **c) Pyrrolidene**                      d) None
41. Pyridine on heating with nitrating mixture gives \_\_\_\_\_  
a) 1-nitro pyridine                      b) 2-nitro pyridine                      **c) 3-nitro pyridine**                      d) 4-nitro pyridine
42. Oxidation of isoquinoline with  $\text{KMnO}_4$  gives ..... as one of the products.  
a) Benzoic acid                      b) Pyridine                      **c) Phthalic acid**                      d) Salicylic acid.
43. Electrophilic aromatic substitutions in quinoline takes place at ..... positions.  
a) 4                      b) 2                      **c) 5 and 8**                      d) 2 and 4
44. 2- Aza naphthalene is the name of .....  
a) Pyridine                      **b) quinoline**                      c) isoquinoline                      d) indole
45. Quinoline is ..... compound.  
a) Homocyclic                      **b) Heterocyclic**                      c) aliphatic                      d) Saturated
46. Electrophilic substitution reactions in Naphthalene takes place at .....position

a) **alpha**                      b) beta                      c) delta                      d) omega

47. The C<sub>1</sub>-C<sub>2</sub> bond length in Naphthalene is,

a) **1.365 Å**                      b) 1.363 Å                      c) 1.404 Å                      d) 1.425 Å

48. The C<sub>2</sub>-C<sub>3</sub> bond length in Naphthalene is,

a) 1.365 Å                      b) 1.363 Å                      **c) 1.404 Å**                      d) 1.425 Å

49. Naphthalene on sulphonation by conc. Sulphuric acid at 80° C gives.....

a) **α-naphthalene sulphonic acid**                      b) β- naphthalene sulphonic acid  
c) γ- naphthalene sulphonic acid                      d) δ- naphthalene sulphonic acid

50. Naphthalene on reaction with CH<sub>3</sub>COCl and AlCl<sub>3</sub> in presence of solvent CCl<sub>4</sub> gives

a) 2-aceto naphthalene                      **b) 1-aceto naphthalene**  
c) 3-aceto naphthalene                      d) 4-aceto naphthalene

51. Naphthalene on reaction with CH<sub>3</sub>COCl and AlCl<sub>3</sub> in presence of solvent Nitrobenzene gives

**a) 2-aceto naphthalene**                      b) 1-aceto naphthalene  
c) 3-aceto naphthalene                      d) 4-aceto naphthalene

52. Which of the following catalyst is used in Friedel-Crafts acylation

**a) Lewis acid**                      b) Lewis base                      c) Sulphuric acid                      d) KOH

53. Which of the following is not an oxidizing agent

a) KMnO<sub>4</sub>                      b) CrO<sub>3</sub>                      c) V<sub>2</sub>O<sub>5</sub>                      **d) KCl**

54. Naphthalene on reduction with sodium and ethyl alcohol gives.....

a) Tetralin                      b) Decalin                      **c) 1-4, dihydro naphthalene**                      d) Pyrrole

55. Naphthalene on reduction with sodium and isopentyl alcohol gives.....

a) **Tetralin**                      b) Decalin                      c) 1-4, dihydro naphthalene                      d) Pyrrole

56. Naphthalene on reduction with  $H_2/Pt$  gives.....

a) Tetralin                      **b) Decalin**                      c) 1-4, dihydro naphthalene                      d) Pyrrole

57. Which of the following is nitrating mixture,

a)  $HCl/H_2SO_4$                       **b)  $HNO_3/H_2SO_4$**                       c)  $H_2/Pt$                       d) All of these

58. The reduction using  $Zn-Hg/HCl$  is called as.....

**a) Clemmenson's reduction**                      b) Birch reduction  
c) Catalytic reduction                      d) Total reduction

59. Haworth synthesis is used to synthesize.....

a) Pyridine                      **b) Naphthalene**                      c) Furan                      d) Pyrrole

60. 3-methyl pyridine is called as.....

a) Pyrrolidine                      b) Piperidine                      c) Acrolein                      **d) Picoline**

61. The removal of carboxyl group in the form of  $CO_2$  by heating is called,

**a) Decarboxylation**                      b) Elimination  
c) Addition                      d) Substitution

62. The reaction using  $CHCl_3/ KOH$  is called.

a) Freidel-Craft reaction                      b) Hydrogenation  
**c) Reimer-Tiemann reaction**                      d) Sulphonation

63. According to solvent system concept, the compound which gives cation of solvent is....

**a) acid**                      b) Base                      c) Neutral                      d) Salt

64. According to solvent system concept, the compound which gives anion of solvent is....

- a) acid                      **b) Base**                      c) Neutral                      d) Salt

65. According to solvent system concept, neutralization is

- a) Reaction between acid and base to give salt  
**b) Reaction between acid and base to give salt and solvent**  
c) Reaction between acid and base to give water  
d) Reaction between acid and base to give acid

66. Oxide ion donor is base. This is according to,

- a) solvent system concept                      b) Lewis concept  
**c) Lux-Flood concept**                      d) Bronsted concept

67. Oxide ion acceptor is acid. This is according to,

- a) solvent system concept                      b) Lewis concept  
**c) Lux-Flood concept**                      d) Bronsted concept

68. Electron pair acceptor species is acid. This is according to,

- a) solvent system concept                      **b) Lewis concept**  
c) Lux-Flood concept                      d) Bronsted concept

69. According to Lewis concept base is,

- a) any species capable of donating electron pair**  
b) Any species capable of accepting electron pair  
c) Substance donating  $H^+$  ion  
d) Substance accepting  $H^+$  ion

70. Combination of ions or molecules of solute with solvent is called,

- a) Neutralization                      b) Oxidation                      c) Reduction                      **d) Solvation**

71.  $BF_3$ ,  $AlCl_3$ ,  $GaCl_3$  are.....



- a) **Lewis acids**                      b) Lewis bases                      c) Bronsted acids                      d) Bronsted bases

72. Combination of acid with base to form addition product or adduct. This according to,

- a) solvent system concept                      **b) Lewis concept**  
c) Lux-Flood concept                      d) Bronsted concept

73. All cations are acids and all anions are bases. This is according to,

- a) solvent system concept                      **b) Lewis concept**  
c) Lux-Flood concept                      d) Bronsted concept

74.  $\text{NH}_3$ ,  $\text{H}_2\text{O}$ ,  $\text{ROH}$ ,  $\text{ROR}$  are.....

- a) Lewis acids                      **b) Lewis bases**  
c) Lux-Flood acids                      d) Bronsted acids

75. According to generalized acid-base concept,

- a)  $\text{H}^+$  is a base                      b) Free electron is acid                      **c) Free electron is base**                      d)  $\text{OH}^-$  is acid

76. Solvent which brings ionization of solute to same extent is called as

- a) Acidic solvent.                      b) Basic solvent                      c) Differentiating solvent.                      **d) Levelling solvent.**

77. Acidic solvents are,

- a) Levelling for acids.                      **b) Levelling for bases.**  
c) Differentiating for bases.                      d) None of the above.

78. Basic solvents are,

- a) Levelling for acids.**                      b) Levelling for bases.  
c) Differentiating for acids.                      d) None of the above.

79. Substances used to increase ionization of acids or bases in medium are,

- a) Oxidizing agents.                      b) Reducing agents.  
**c) Co-solvating agents.**                      d) Redox agents.

80. Species having strong tendency to accept electrons & form ionic bond with base, are called  
a) Hard base.                      b) Soft base.                      **c) Hard acid.**                      d) Soft acid.
81. Species in which valence electrons are easily distorted or polarized or donated, are called  
a) Hard base.                      **b) Soft base.**                      c) Hard acid.                      d) Soft acid.
82. According to Pearson's HSAB concept, Hard acid prefers to bind,  
**a) Hard base.**                      b) Soft base.                      c) Hard acid.                      d) Soft acid.
83. According to Pearson's HSAB concept, the product is more stable when,  
a) Hard acid combines with soft base.                      b) Soft acid combines with Hard base.  
**c) Hard acid combines with Hard base.**                      d) cannot be predicted.
84. Solute is a substance which dissolves in solvent and forms,  
**a) Solution**                      b) Gas                      c) Film                      d) acid
85. Water has .....dielectric constant.  
a) Low                      b) Negative                      **c) High**                      d) Zero
86. Molten salts are,  
a) Protic                      **b) Aprotic**                      c) Acidic                      d) Basic
87. Dissolved oxygen can be partly removed from solvent by  
a) Exposing to sunlight                      b) Passing air  
**c) By bubbling nitrogen gas**                      d) Cannot be removed
88. According to Electronic theory, Hard-Hard interactions involve,  
a) Co-ordinate bonding                      **b) Ionic bonding**  
c) Covalent bonding                      d) H-bonding
89. According to Electronic theory, Soft-Soft interactions involve,  
a) Co-ordinate bonding                      b) Ionic bonding

c) **Covalent bonding**

d) H-bonding

90. HSAB concept can be used to determine,

a) Stability of complexes

b) Predicting feasibility of reactions

c) Solubility of compounds in a given solvent

**d) All the above**

91. Decrease in the activity of a catalyst due to contamination is called as,

**a) Poisoning of catalyst**

b) Dirtiness of catalyst

c) Arresting of catalyst

d) None of above

92. Which of the following is a disadvantage of solvent system concept,

**a) It requires solvent**

b) It requires clean apparatus

c) It requires large literature

d) It is useless

93. The Lewis concept is,

a) Tedious

b) Boring

**c) Broader**

d) Shorter

94. Lewis bases are .....in complexes.

a) Metal ions

b) Counter ion

c) whole complex

**d) Ligands**

95. The species with highest positive charge density is,

**a) Strongest acid**

b) Strongest base

c) Weakest acid

d) Neutral

96. The species with highest negative charge density is,

a) Strongest acid

**b) Strongest base**

c) Weakest base

d) Neutral

97. ....solvents are used to determine the strength of acids & bases of a given series.

a) Levelling

**b) Differentiating**

c) Acidic

d) Basic

98. Solvation takes place by,

- a) Formation of co-ordinate bond                      b) ion-dipole interaction  
c) **Both a and b**    d) None of the above

99. In electrochemical reactions, solvent must have,

- a) **High dielectric constant**                                      b) Low dielectric constant  
c) Zero dielectric constant                                      d) Negative dielectric constant

100. Solvent ether reacts with oxygen in air on long exposure and forms,

- a) Sulphides              b) Nitriles              **c) Peroxides**              d) Hydrides