

# MULTIPLE CHOICE QUESTIONS

**B.SC. - 4TH SEM.  
CHEMISTRY**

**I<sup>ST</sup> PAPER - INORGANIC AND  
PHYSICAL CHEMISTRY**

**II<sup>ND</sup> PAPER - ORGANIC CHEMISTRY**

**BY-**

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(01)

Multiple choice Questions

[MCQs]

Class - B.Sc [4th Sem]

Subject - Chemistry

1st Paper - Inorganic and Physical Chemistry

Attempt all questions and each question carry 02 marks.

Q 1. The stability of metal complexes is governed by the.

ANS. By thermodynamic and kinetic stability.

Q 2. The stability of metal complexes exists as.

ANS. The nature of the metal ions, ligands, bonding between metal ions and ligands etc.

Q 3. What do you mean by kinetic stability of complexes?

ANS. Basically occurs when the reactants reach ~~easily~~ really slowly, slower the reaction, greater the kinetic stability.

Q 4. What is thermodynamic stability?

ANS. In terms of free energy difference between reactants and products

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(02)

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B.Sc [4th sem]

1st Paper - Inorganic and Physical Chemistry

Q 5. What are factors affecting the stability of metal complexes?

ANS. May be affected by the various factors like nature of central metal ions, ligands and chelating effects.

Q 6. What does thermodynamically stability mean?

ANS. When a system is in its lowest energy state or chemical equilibrium.

Q 7. Why emulsion is thermodynamically unstable?

ANS. Because the interfacial tension is always greater than zero.

Q 8. What is kinetic process?

ANS. Also known as reaction kinetics.

Q 9. What are the factors affecting stability?

ANS. It includes temperature, light, pH, oxidation and enzymatic degradation.

Q 10. How does a chelate affect the stability of a metal complex?

ANS. The chelate effect is that complexes resulting from co-ordination with the chelating ligand.

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(Contd. Sum Page No - 02)

B.Sc [4<sup>th</sup> Sem]

1st Paper - Inorganic and Physical Chemistry

Q 11. The bulky group on the stability of a complex is known as.

ANS. Steric hinderance, as basicity of ligand.

Q 12. The term kinetic stability of complexes classified as

ANS. Classified into labile and inert by Taube on the basis of rate of the reactions.

Q 13. What is Labile?

ANS. When the rate of substitution of ligands is high, the complex is known as "Labile".

Q 14. The common example of labile.

ANS. The copper complex is labile.  
 $[Cu(NH_3)_4(H_2O)_2]^{2+}$

Q 15. Determination of stability of complex compounds

ANS. Are the degree of oxidation [charge on the central ion in the case of ionic complexes, the dimensions and structure.

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(Contd. from Page No - 03)

B. Sc [4th Sem]

1st Paper - Inorganic and Physical Chemistry

Q 16. What is stepwise stability constant &

ANS. In the expressions for the equilibrium constant, the square brackets there have their usual meaning of the concentrations.

Q 17. In the stability constant, what is  $K_1$  to  $K_n$  are called.

ANS. Stepwise stability constant (or) stepwise formation constants

Q 18. The full form of DKS.

ANS. Dynamic kinetic stability.

Q 19. The function of chelating ligand.

ANS. Can form a ring with central metal

Q 20. Which is the most stable complex &

ANS.  $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$  most stable

Q 21. What is EDTA &

ANS. Hexa-dentate ligand.

Q 22. What is chelate &

ANS. Multidentate ligand [which coordinates with central metal atom to form a compound.

Q 23. What is formation constant &

ANS. Formation constant,  $K_f$ , describes the formation of a complex from central ion and attached ligands.

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(Contd. from Page No - 04)

B.Sc [4th sem]

Ist - Inorganic & Physical Chemistry  
Paper

Q 24. What is magnetic susceptibility & ANS. Depends on the measurements of  $B/H$

Q 25. What is Gouy's method & ANS. Involves measuring the force on the sample by a magnetic field.

Q 26. The symbol for magnetic susceptibility is ANS.  $\chi_m$  [magnetic field strength  $H$  (or)  $\chi_m = M/H$ ]

~~Q 27.~~ Q 27. What is magnetic permeability & ANS. It describes the ability of a material that formation of magnetic fields

Q 28. What is magnetic susceptibility of a paramagnetic material & ANS. The ratio of the intensity of magnetization to the vector  $H$ .

Q 29. Perfectly diamagnetic. ANS. Perfectly diamagnetic.

Q 30. What is Debye's method & ANS. To determine magnetic susceptibility of diamagnetic or paramagnetic substances in the form of a liquid or an aqueous solution.

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(Contd. from Page No-05)

B.Sc [4th sem]

1st Paper - Inorganic & Physical Chemistry

Q 31 What are response of Quincke's concept?

ANS When an object is placed in a magnetic field, a magnetic moment is induced in it.

Q 32. What is MEMF?

ANS. Motional Electromotive Force.

Q 33. Paramagnetic susceptibility is

ANS Is inversely proportional to the value of the absolute temperature.

Q 34. The symbol of magnetic permeability.

ANS.  $\mu$

Q 35. The symbol for magnetic Polarization.

ANS. Pseudo vector M.

Q 36. What is magnetic Polarization?

ANS. The vector fields that expresses the density of permanent or induced magnetic dipole ~~moments~~ moments in a magnetic materials

Q 37. What is the SI unit of magnetic flux?

ANS. Is the Weber [Wb, in derived units, Volt-seconds], and the CGS unit is the Maxwell

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B.Sc [4<sup>th</sup> sem]

IST - Inorganic and Physical Chemistry  
Paper

Q. 38. What is Meissner effect & ANS. The expulsion of a magnetic field from the interior of a material.

Q. 39. The Quincke's method is used for. ANS. To determine magnetic susceptibility of paramagnetic substances in the form of liquid or aqueous solution.

Q. 40. What is magnetic intensity & ANS. A vector quantity pertaining to the condition at any point under magnetic influence.

Q. 41. What is MMF & ANS. Magneto motive force [as, force responsible for generation and motion of flux]

Q. 42. Paramagnetic property is due to. ANS. Due to the presence of some unpaired electrons.

Q. 43. Paramagnetic materials includes - ANS. Aluminium, Titanium and Iron oxide [FeO]

Q. 44. What are the ferromagnetic materials & ANS. Iron, Cobalt and Nickel.

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B.Sc [4<sup>th</sup> Sem]

IST - Inorganic and Physical Chemistry  
Paper

Q45. What is the most magnetic material in nature?

ANS. Mineral Magnetite, also known as Lodestone

Q46. Types of Permeability

ANS. Passive transcellular diffusion, Paracellular, efflux transport, uptake transport & endocytosis

Q47. Which material has high retentivity?

ANS. Iron

Q48. Full form of PMC.

ANS. Perfect Magnetic conductor

Q49. Is there a perfect conductor?

ANS. Has zero electrical resistance for any levels of the current associated with magnetic fields.

Q50. What is induced dipole moment?

ANS. Created in a nonpolar molecule or neutral atom by coming into close contact with a polar molecule.

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1st Paper - Inorganic and physical chemistry

- Q 51. What is dipole in chemistry ?  
ANS. Occurs due to the unequal sharing of electrons between atoms in a molecule.
- Q 52. What is dipole in simple terms ?  
ANS. A type of intermolecular bond between two ions in an ionic bond or two atoms in a covalent bond.
- Q 53. Dipole moment is a  
ANS. A vector quantity.
- Q 54. What exactly is dipole moment ?  
ANS. It is a measurement of the separation of two opposite electrical charges.
- Q 55. What is permanent dipole moment ?  
ANS. When the molecule is polar.
- Q 56. The apparatus used for determining the surface-tension.  
ANS. Stalagmometer
- Q 57. Surface Tension is a  
ANS. A physical property equal to the amount of force per unit area.

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B.Sc [4<sup>th</sup> sem]

Ist paper - Inorganic and Physical Chemistry

Q 58 why is surface tension important?  
ANS. It determines the efficiency of detergents formulations.

Q 59. Surface tension is also used as -

ANS. The high surface tension of water makes it a relatively poor cleaning detergent.

Q 60. What are common examples of surface tension?

ANS. Insects walking on water, floating a needle on the surface of water

Q 61 what happens when surface tension is increased?

ANS. As intermolecular forces increases

Q 62. The units of surface tension is

ANS. Newtons per meter [N/m] or dynes per centimeter [dyn/cm]

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## Multiple choice Questions

[MCQs]

Class - B.Sc [4<sup>th</sup> sem]

Subject - Chemistry

• II<sup>o</sup> - Organic Chemistry  
Paper

Attempt all questions and each question carry 02 marks


Q1. Structure of Aniline

ANS. 

Q2. R-NO<sub>2</sub> is.

ANS. Nitroalkane

Q3. Structure of Azene diazonium chloride.

ANS. 

Q4. R-NH<sub>2</sub> is a

ANS. Alkylamine

Q5. Functional group in Glucose.

ANS. -CHO group [Aldehyde group].

Q6. Functional group in Fructose.

ANS. >C=O [Ketone group]

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B.Sc [4th Sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q7. Synthesis of Nitroalkane is



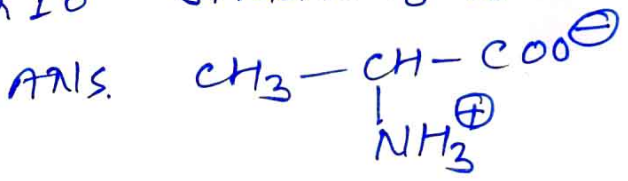
Q8. Amino acetic acid is also known as.

ANS. Glycine

Q9. Zwitter ion is a

ANS. Dipolar ion [Innersalt]

Q10 structure of zwitter ion is



Q11. Zwitter mean is

ANS Hybrid hermaphrodite

Q12 The symbol of Isoelectric point is.

ANS. pI

Q13 Peptide bond is.



Q14. Full form of DNA.

ANS. Deoxyribonucleic acid.

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(Contd. from Page 10-02)

B. Sc [4<sup>th</sup> Sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q 15. Full form of RNA.

ANS. Ribonucleic acid.

Q 16. The Full of mRNA.

ANS. Messenger RNA

Q 17. Double helical structure exists in.

ANS. In DNA

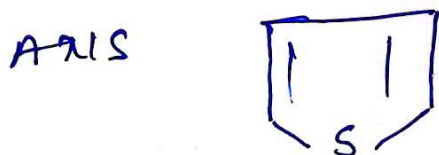
Q 18. Diazotization reaction takes from

ANS.  $\xrightarrow[0-5^{\circ}\text{C}]{\text{NaNO}_2/\text{HCl}}$

Q 19. Structure of Pyrrole is



Q 20. Structure of thiophene is



Q 21. Milk is acidic or basic

ANS. Basic

Q 22. The colour of Picric acid is.

ANS. Pale yellow.

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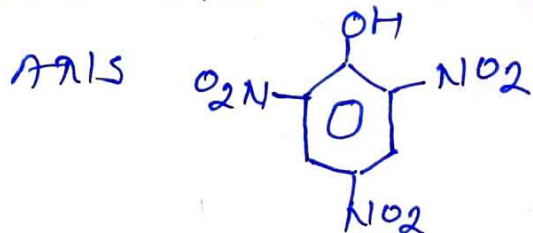
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(contd. from Page No-03)

B.Sc [4<sup>th</sup> sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q 23. Structure of Picric acid



Q 24. Chemical name of Picric acid.

ANS. 2,4,6-Trinitrophenol.

Q 25. Picric acid is used as

ANS As an explosives and also as an antiseptic & fixative.

Q 26. Phthalimide is used as an.

ANS As a precursor to anthranilic acid and to azo dyes.

Q 27. Sodium saccharin is insoluble (or) soluble.

ANS. Soluble

Q 28. Chemical name of Saccharin is

ANS. Benzoic sulphimide.

Q 29. Chemical name of Nitrogen.

ANS. Azote.

Q 30. Chemical name of sulphur.

ANS. Thio

Q 31. Saccharin is.

ANS. 300 times more sweetest than ordinary sugars.

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(Contd. from Page No - 04) [ B.Sc [4<sup>th</sup> sem] [In<sup>n</sup> Paper] ]  
organic chemistry

Q 32. Milk + Lemon  $\rightarrow$  cheese is

ANS. Is a denaturation process.

Q 33. What is native protein. ?

ANS. Three dimensional structure  
[3d-form]

Q 34.  $\text{CH}_3 - \text{CH} - \text{COOH}$   
          |  
          NH<sub>2</sub>

ANS. Amino acid.

Q 35. Yellow part of egg is

ANS. Albumin

Q 36. structure of Furan. is

ANS.



Q 37. Osazone is a class of.

ANS. Carbohydrates.

Q 38. What is the purpose of osazone test ?

ANS. Will give some indication whether  
is sugar is glucose or lactose.

Q 39. Why is saccharin banned ?

ANS. Long time of use causes carcinogenic  
effects.

Q 40. Galactose is a.

ANS. Milk sugar

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(Contd. from Page No-05)

B.Sc [4<sup>th</sup> Sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q41. Molecular formula of phenylhydrazine.

ANS.  $C_6H_5NH.NH_2$

Q42. What is hydrazine?

ANS.  $NH_2NH_2$

Q43. What is galactose found in?

ANS. In dairy products, sugarbeets,  
In gums & mucilages.

Q44. Galactose is also known as.

ANS. Brain sugars

Q45. Galactose is a.

ANS. Monosaccharides.

Q46. Starch formerly known as.

ANS. Complex carbohydrates.

Q47. The chemical formula of starch is

ANS.  $(C_6H_{10}O_5)_n$

Q48. Leucine is a

ANS. Amino acid.

Q49. Which amino acid is most polar?

ANS. Arginine and Lysine.

(Contd. from Page No - 06)

B.Sc [4th sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q 50. What colour indicates the presence of starch ?

ANS. A blue-black colour with iodine solution.

Q 51. Molisch Reagent is ?

ANS. Naphthol + 95% ethanol.

Q 52. Ribose present in

ANS. In RNA, as a normal sugar [With one O<sub>2</sub> atom]

Q 53. Deoxyribose present in

ANS. In DNA, [as a lacking of one O<sub>2</sub> atom] Hence name is "deoxy"

Q 54. Amino acids contains which types of functional groups.

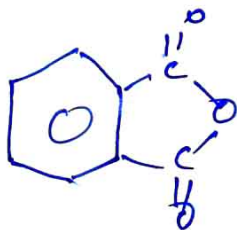
ANS. -COOH and -NH<sub>2</sub> (groups.)  
Group Group

Q 55. The azo group is

ANS -N=N-

Q 56. Structure of Phthalic anhydride

ANS



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(Contd. Exam Page No - 07)

B.Sc [4th Sem]

II<sup>nd</sup> Paper - Organic Chemistry

Q 57. Hydroxyl amine is

ANS.  $NH_2OH$

Q 58. Which reagent are used to detect the carbohydrates?

ANS. Benedict's reagent, it turns from turcise to yellow or orange.

Q 59. What is Molisch Test used for?

ANS. To check the presence of carbohydrates.

Q 60. Common examples of Polysaccharides are.

ANS. starch, cellulose, and glycogen.

Q 61. What are proteins?

ANS. Are large biomolecules (or) macromolecules consisting of one or more long chains of amino acid residues.

Q 62. What is the functions of Protein in the human body?

ANS. They help in metabolism by providing structural support by acting as enzymes carriers or hormones, growth and maintainance, also for proper to maintain the pH values

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