

4.Question bank

The respective class teachers provide the slow learners chapter wise important question bank which is useful an in-depth analysis of questions.

S.G.S ARTS COLLEGE, TTD, TIRUPATI

DEPARTMENT OF CHEMISTRY

I B.Sc II SEMESTER IMPORTANT QUESTIONS

UNIT –ICARBON-CARBON SIGMA BONDS

1. Write the mechanism of chlorination of methane?
2. Explain Baeyer strain theory of cyclo alkanes?
3. Write the conformations of ethane, Butane gives its stability order?
4. Draw the conformations of Cyclo hexane?

UNIT- II CARBON-CARBON PI BONDS

1. Write Markownikovs rule with suitable examples?
2. Write the reactions of ethylene with following reagents? a) OSO_4 b) O_3 c) KMnO_4 d) B_2H_6
3. Write the reaction and mechanism of addition between 1,3-Butadiene and HBr ?
4. Write the preparation of alkenes and give the chemical properties?
5. Write the Diels- Alder reaction with example?

UNIT-III BENZENE AND ITS REACTIVITY

1. What are Benzoid and Non Benzoid compounds. Give examples?
2. Write the nitration and sulphonation reaction of benzene with mechanism?
3. Write Friedel Craft alkylation and acylation reactions?
4. What is orientation? Explain the different orientation with examples?
5. Write the orientation of amino and methoxy functional groups?

UNIT-IV SURFACE CHEMISTRY AND CHEMICAL BONDING

1. What is adsorption and write about differences between physical and chemical adsorption?
2. Explain the factors affecting the adsorption?
3. What is hybridisation? To explain sp^3d , sp^3d^2 , hybridisation with examples?
4. To draw the MOT diagram of following molecules and write bond order and magnetic properties? a) N_2 b) O_2 c) CO d) NO
5. Explain the Pearson's classification of HSAB or HSAB theory?

UNIT-V STEREO CHEMISTRY OF CARBON COMPOUNDS

1. Write about D.L & R.S configuration?
2. What is racemic mixture? Explain the resolution method?
3. Explain Cis, Trans and E&Z configuration?
4. Give wedge, Fischer, sawhorse, Newman projection formulas of molecules?

FOURTH SEMESTER PAPER-I IMPORTANT QUESTIONS

UNIT-I

ORGNO METALIC COMPOUNDS

1. Explain the classification OMC's ?
2. Write about the concept of hapticity of organic ligands?
3. What is 18 electron rule. Explain with any four examples?
4. Explain the preparation methods of mono and binuclear carbonyl compounds?

UNIT-II

CARBOHYDRATES

1. Structure determination of glucose?
2. Classification of carbohydrates based on hydrolysis?
3. Cyclic structure of glucose?
4. Write a short on (killiani-Fischer's synthesis) ?

UNIT-III

AMINO ACIDS AND PROTEINS

1. Write the classifications of amino acids based on their nature ?
2. Prep methods of amino acids by:
 - a. strecker's synthesis
 - b. malonic ester synthesis
 - c. alpha-halo acid method
3. write a short on zwitter ion and isoelectric point
4. what is peptide bond? Prepare a tripeptide ?

UNIT-IV

NITRO HYDRO CARBONS

1. Write the following reactions
 - (i) Gabriel synthesis
 - (ii) Schmidt reaction
2. Explain the separation of 1(degree), 2(degree), 3(degree), -amines mixture by hinber's process ?
3. What is carbyl amine reaction?
4. Explain diazotisation reaction?
5. Give the following reactions of Aniline?
 - (i) Bromination
 - (ii) Nitration
 - (iii) coupling reaction

UNIT-V PHOTO

CHEMISTRY

1. Explain Grouthus – Drapper's law & Stark Einstein 's law?
2. What is Quantum yield ? Explain Quantum yield H₂-Cl₂ reaction ?
3. Explain the Quantum yield of H₂ – Br₂ Reaction ?
4. Explain Fluorescence & Phosphorescence ?

S.G.S ARTS COLLAGE, TTD,TIRUPATI

DEPARTMENT OF CHEMISTRY

FOURTH SEMESTER PAPER-2

UNIT-I

INORGANIC & PHYSICAL CHEMISTRY

1. Postulates of valence bond theory ?
2. Write the features of crystal field theory ?
3. Explain the crystal field in splitting in octahedral , Tetrahedral and square planar complexes ?
4. Explain about jahn-teller distortion ?

UNIT-II

INORGANIC REACTION MECHANISM

1. Write about thermodynamic stability and kinetic stability?
2. Explain the factor affecting the stability of metal complexes?
3. Explain the structure and Functions of chlorophyll ?
4. Explain the toxic city of following metals,
(a) Lead (b) Arsenic (c) Mercury (d) Cadmium

UNIT-III

PHASE RULE

Explain the terms

- a) Phase b) Components c) degree of freedom
b) write About MG –ZN system ?

Explain the phase diagram of NaCl-H₂O System ?

UNIT-IV

ELECTRO CHEMISTRY

1. Explain the Kohlrausch law and its applications ?
2. Write about Debye –Huckel –Onsager's Equation?
3. Explain about Nernst equation?
4. What are fuel cells and explain about Hydrogen ?

UNIT-V

CHEMICAL KINETICS

1. Write the differences order and molecularity?
2. Derive the rate constant for,
a) zero order reaction b) First order reaction c) Second order reaction
3. Write the units , Half life and examples for
a) zero order b) First order c) Second order reactions
4. Derive the Arrhenius equation to calculate Activation energy ?

S.G.S. ARTS DEGREE COLLEGE,TTD,TIRUPATI

DEPARTMENT OF CHEMISTRY

I-B.sc II SEMESTER

DATE : 21/06/2023

INTERNAL CLASS TEST FOR SLOW LEARNERS

SECTION-A

I. Answer any one question 1x5 = 5M

1. A) Write about wurtz and wurtz fitting reaction?
B) Write about corey-harse synthesis?
2. What is hybridisation? Explain?

SECTION- B

II. Answer any two questions 2x10 =20M

1. Write important methods of preparation and properties of alkanes?
2. Explain the Bayer's strain theory ?
3. What are the difference between lyophilic and lyobhobic sols?

S.G.S. ARTS DEGREE COLLEGE,TTD,TIRUPATI

DEPARTMENT OF CHEMISTRY

II-B.sc IV SEMESTER- IV PAPER

DATE : 06/07/2023

INTERNAL CLASS TEST FOR SLOW LEARNERS

SECTION-A

- I.** Answer any one question 1x5 = 5M
1. Derive heat capacities and derive $C_p - C_v = P$?
 2. What are epimers and anomers?

SECTION-B

- II.** Answer any two questions 2x10 = 20M
1. What are organometallic compounds?
Discuss their classifications on the basis of types of bonds with examples.
 2. What are the amino acids? Write any three general methods of preparation of amino acids?
 3. i) Explain Ruff's degradation?
ii) Explain the anti-Fischer synthesis?

S.G.S. ARTS DEGREE COLLEGE,TTD,TIRUPATI

DEPARTMENT OF CHEMISTRY

II-B.sc IV SEMESTER- V PAPER

DATE : 22/06/2023

INTERNAL CLASS TEST FOR SLOW LEARNERS

SECTION-A

I. Answer any one question 1x5 = 5M

1. Write any two methods of preparation of carbonyl compounds?
2. Write the application of IR spectroscopy?

SECTION-B

II. Answer any two questions 2x 10= 20M

1. Explain the following
 - (a) Cannizzaro's reaction
 - (b) Perkin's reaction
2. Write a note on energy level of simple harmonic oscillator and an harmonic oscillator?
3. Explain about splitting of signals & spin-spin coupling?