

Chemistry Assignment for Sem V Students 2024-25

- ❖ *this assignment is common for both Major-1 and Major-2 students.*
- ❖ *Use fair register to write .*
- ❖ *Chemical reactions are must.*

Q1. Define Grignard reagent. How it is prepared in laboratory? Discuss it's physical and chemical properties.

Q2. Discuss the methods of preparation and properties(physical and chemical) of followings:-

- a) Organo-Zinc compounds
- b) Organo-Lithium compounds
- c) Thioalcohols
- d) Thiophene
- e) Quinoline
- f) Indole
- g) Pyrrole
- h) Furan
- i) Glycine, and its uses
- j) Alpha Amino-acids

NOTE- no need to write theory of chemical reactions; Write mechanism wherever necessary.

Q3. Explain the metal exchange reaction with suitable examples.

Q4. Explain the orbital structure which is present between Carbon-Magnesium bond in ethyl magnesium bromide.

Q5. Explain the Aromaticity and Basic character of five membered heterocyclic compounds.

Q6. Give the resonance hybrid structure of pyrrole and describe its molecular orbital structure.

Q7. Write Short note on the following (with reactions wherever necessary)

- a) Amino acids
- b) Open-chain and Ring structure of Glucose and fructose.

- c) Reducing sugars
- d) Structure and bonding in sucrose, lactose and maltose.
- e) Killiani Fischer Synthesis and Ruff Degradation with two-two examples of each
- f) Carbohydrates (sugars), Starch, Cellulose.
- g) Sulfaguanidine
- h) Ninhydrin, Molisch and Biuret test
- i) Isoelectric point and Electrophoresis
- j) Peptide synthesis (classical as well as solid phase)
- k) Double helical model of DNA
- l) Transcription
- m) Polyesters and Polyamides

Q8. What are protein? Describe their classification, bonding and structural representation.

Q9. Discuss the primary, secondary, tertiary and quaternary structure of proteins.

Q10. Define Nucleic acid. Write about their types and chemical composition.

Q11. What are vinyl polymers? Discuss their Free-radical, Cationic, Anionic mechanisms of polymerization.

Q12. Dicuss the Witt's theory of colours.

Q13. Write synthesis of:-

- i. Congo red
- ii. Malachite green
- iii. Fluroscein
- iv. Alizarin
- v. Methyl orange