

B. Sc. semester VI ORGANIC CHEMISTRY (Prof. ERA GARG)

Some Important Questions based on your syllabus

- Q.1. a) Why does Pyridine give nucleophilic substitution reaction but not benzene?
b) Pyrrole is acidic in nature. Explain.

- Q.2. a) Explain
(i) Electrophilic substitution of pyridine takes place with difficulty, when it does, it takes place at 3-position.
(ii) Electrophilic substitution in Indole takes place at 3-position
b) Compare the basic character of pyridine, piperidine and pyrrole.

- Q.3. a) What happens when?
(i) Quinoline treated with alk. $KMnO_4$
(ii) Isoquinoline is treated with $NaNH_2$ in liq. NH_3 .
(iii) Indole treated in Sn/HCl
b) Explain Chichibabin reaction with mechanism

- Q.4. Explain
a) mechanism of Fischer-Indole synthesis
b) Pictet-Spengler synthesis of furan derivatives
c) Bischler-Napieralski synthesis of isoquinoline

- Q.5. a) Compare the aromatic character of furan, thiophene and pyrrole.
b) What is Skraup synthesis? Explain with mechanism

Some Important/Test Questions

Q.6 a) Describe the factors affecting the relative amount of keto and enol form in Keto-enol tautomerism

b) Explain the formation of Ethylaceto-acetate from ethyl acetate and sodium ethoxide with mechanism.

Q.7 a) Write down synthesis of Isonitric acid and n-Butyric acid from Diethyl malonate.

b) How will you synthesis 4-methyl-2-pentanone from ethylaceto acetate.

Q.8 a) Discuss the stereochemistry of α -amino acids.

b) Explain

- i) Electrophoresis
- ii) Zwitter ion
- iii) Peptide bond

c) Why amino acids are called amphoteric compound?

Q.9. Explain:

- (i) Edman's method of N-terminal residue analysis
- (ii) Describe Merrifield solid phase peptide synthesis

Q.10 (a) Describe the secondary structure of proteins

(b) Give evidence to support dipolar structure of α -amino acids.

Q.11 (a) Explain effect of pH on the structure of α -amino acids.

(b) Describe Gabriel-phthalimide synthesis of α -amino acids.

(c) Why amino acid has minimum solubility at its isoelectric point?

Some Important / Test Questions

Q.12 a) What are essential amino acids? Give the structure of any two essential amino acids.

b) In amino acids, $-\overset{+}{N}H_3$ is the acidic group and $-COO^-$ is the basic group. Explain.

c) How Peptides are formed?

d) What are polypeptides?

Q.13 a) Explain

i) Globular proteins

ii) Prosthetic group

iii) Ninhydrin test

b) Explain β -pleated sheet structure in brief.

Q.14. a) What is terminal residue analysis?
How is it used to determine the sequence in which the amino acids occur along a polypeptide chain.

Q.15. a) What is the importance of the primary structure of a protein in determining its biological activity?

b) Why α -helix are always right handed in proteins.

c) What are antibodies?

Some important / Test Questions.

- Q.16 a) What is the difference between nylon-6 and nylon-66.
b) Write a short note on natural and synthetic rubber.
c) What is denaturation of proteins?

- Q.17. a) What are polyesters and polyamides?
b) Name the type of polymerisation involved.
c) Give one example of each with preparation and uses.

- Q.18 a) Give the preparation and uses of
(i) Buna-S
(ii) Neoprene

- b) Give the preparation and uses of phenol-formaldehyde polymer.

- Q.19 a) What are epoxy resins?

- b) Give uses and properties of the
i) Polyurethane foam
ii) Glyptal
iii) Styron

- Q.20. a) Explain vulcanization of rubber. How vulcanised rubber is superior to natural rubber

- b) What do you understand by the terms: isotactic, syndiotactic and atactic with respect to the polymer polypropylene.