

**B.Sc. Part III
Organic Chemistry**

Multiple Choice

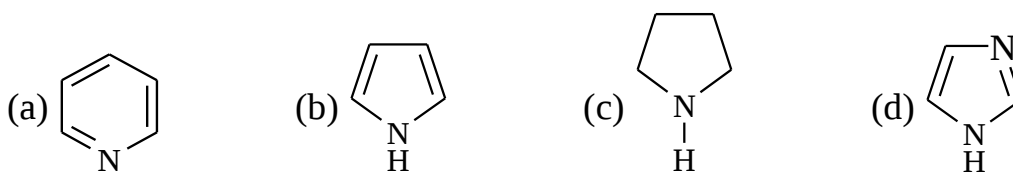
Q.1 The approximate value of methyl proton in NMR is

- (a) 1.3 (b) 1.5 (c) 0.9 (d) 2.5

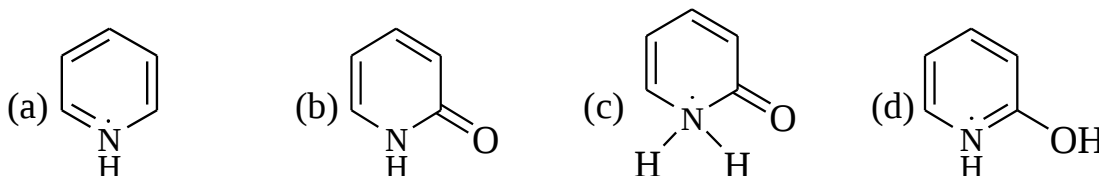
Q.2 In NMR spectrum the nuclei in up field resonate at

- (a) High frequency (b) Low frequency
(c) It is constant throughout the spectrum
(d) It doesn't depends on chemical shift

Q.3 Which compound is most basic?



Q.4 Which of (a to d) is not aromatic



Q.5 The most abundant bio molecule on the earth

- (a) Nucleic acids (b) Proteins (c) Lipids (d) Carbohydrates

Q.6 Which of the following is a reducing sugar

- (a) Glucose (b) dihydroxyacetone
(c) Erythulose (d) None of the above

- Q.7 Which of the following amino acid has a net negative charge at physiologic pH ~ 7.4 ?
- (a) Glutamic acid (b) Histidine (c) Lysine (d) Asparagine
- Q.8 All of the following are aliphatic amino acids except
- (a) Glycine (b) Alanine (c) Proline (d) Lysine
- Q.9 The azodye is formed by interaction of an aromatic diazonium chloride with
- (a) A phenol (b) An aliphatic primary amine
(c) Benzene (d) Nitrous acid
- Q.10 Malachite green is a direct dye for silk and wool. It is prepared by condensing
- (a) Benzaldehyde and dimethyl aniline
(b) Carbonyl chloride and dimethyl aniline
(c) Benzene diazonium chloride with dimethyl aniline
(d) None of the above

Short Answer Questions

1. Why TMS is used as reference in NMR spectroscopy?
2. Define chemical shift.
3. Explain alkylation of acetoacetic ester.
4. Discuss the structure and aromaticity of pyrrole.
5. How will you obtain the following :
 - (a) Indoline from indole
 - (b) Nicotinic acid from quinolone

6. Write short notes on:
 - (a) Skraup's synthesis
 - (b) Fischer indole synthesis
7. Differentiate reducing and non-reducing sugar.
8. What is Killiani Fischer synthesis ?
9. Write mechanism of osazone formation.
10. Write a note on isoelectric point.
11. What do you mean by nucleoside and nucleotides ?
12. Write differences between DNA & RNA.
13. What are azo dyes?
14. What are chromophore & auxochrome?
15. Give the chemistry of congo red.

Long Questions:

1. What are shielding and deshielding effect? Describe them in the reference of chemical shift.
2. Write short notes on:
 - (a) Keto enol isomerism
 - (b) Knoevenagel reaction
 - (c) Claisen's condensation
3. Discuss the comparative aromatic nature of pyrrole, thiophene and furan. Why these compounds are called superaromatics?
4. Explain electrophilic and nucleophilic substitution reaction in pyridine on the basis of stability of intermediate carbocation and carbanion.

5. How will you convert
 - (a) Aldohexose into aldopentose
 - (b) D-mannose into D-glucose
 - (c) Fructose into glucose
 - (d) Fructose into fructosazone
6. Discuss the structure of lactose, sucrose and starch
7. What are amino acids ? How are they classified? Describe their structure
8. What is meant by nucleic acid? Give their importance and discuss the biosynthesis of nucleic acids.
9. Give synthesis of each of the following
 - (a) Methyl orange
 - (b) Malachite green
 - (c) Fluorescein
 - (d) Congo red
10. Write note on the following-
 - (a) Zeigler-Natta catalyst
 - (b) Nylon-66
 - (c) Melamine
 - (d) Bakelite