**Question Bank**

**4 semester B. pharmacy Pharmaceutical Organic chemistry-3**

**Unit-1**

**10 Marks**

1. What is Racemic modification? Discus the method of resolution of racemic modification.
2. What are symmetric and asymmetric molecule? Explain asymmetric synthesis.
3. Write the rule in nomenclature of optical isomer by R S and D L configuration?
4. Define configuration. Explain the sequence rule for R S system of nomenclature of optical isomers.
5. Define configuration. Explain the sequence rule for R S and D L system of nomenclature of optical isomers.
6. A. explain the elements of sysmmetry.

B. what are relative and absolute configuration and explain the rules in determining R and S configuration.

**5 marks**

1. Define the terms with suitable example a) Diastereoisomers b) Meso compounds c) Enantiomers.
2. Write a note on elements of symmetry with example.
3. Write a note of R and S system of configuration.
4. Write the reactions of chiral molecule in which bonds to the chiral centre are broken.
5. Explain the reaction of chiral molecule in which bonds to the chiral centre are not broken and generation of second chiral centre.
6. Write the possible stereoisomers of 2,3-dichlorobutane and identify the different types of isomers.
7. Mention the method used for the resolutions of racemic mixture and explain any two.
8. Explain ant two reactions of chiral molecule.
9. Distinguish between configuration and conformation with example.
10. Write a note on asymmetric synthesis.
11. Explain enantionmers and diasteromers with suitable example.
12. Define chiral and achiral molecules with example. Write any two reactions of chiral molecules.

**2 marks**

1. Define stereoisomerism with example.
2. What are chiral molecule? Give example.
3. Define centre of symmetry with example.
4. What are meso compounds? Give example.
5. Define diastereoisomerism with example.
6. Define plane of symmetry with example.
7. Define enantiomers with example.
8. Define alternative axis of symmetry with example.
9. Define meso compound with example.
10. Define racemisation and racemic modification.
11. Define asymmetric carbon atom and give the formula to calculate isomeric forms.

**Unit-2**

**10 marks**

1. Define geometric isomers and explain the method of nomenclature of geometric isomers.
2. Discuss the methods used to determine the configuration of geometrical isomers.
3. Explain the stereochemistry of Biphenyl and conditions required for optical activity.
4. Discuss aromaticity and chemical reactivity of Furan, Thiophene and Pyrrole
5. Give various methods of determination of configuration of geometrical isormers
6. Explain the stereochemistry of Biphenyl compounds and criteria for a molecule to exhibit Optical activity

**5 Marks**

1. Discuss conformational isomers in Ethane
2. Discuss conformational isomers in n-butane
3. Discuss the various conformational isomers of cyclohexanie
4. Discuss the various conformational isomers of n-Butane
5. Write a note on E & Z. and Syn & Anti systems of nomenclature

**2 Marks**

1. Mention the name of any two methods of configuration of geometrical isomers
2. Stereospecific reaction with example
3. What are Atropisomerism? Write the example
4. Illustrate with example of Syn and Anti system of nomenclature
5. Define stereoselective reaction with suitable example
6. Illustrate with example of E and Z nomenclature
7. What do you understand by the term optical activity
8. Define conformers with example

**UNIT 3**

**10 Marks**

1. What are heterocyclic compounds? Give their systematic nomenclature and classification
2. Give the methods of synthesis and chemical reactions of Furan and Thiophen
3. Give the methods of synthesis and chemical reactions of Furan and Pyrrole
4. Explain the stereochemistry of biphenyls and conditions required for optical activity.
5. What are heterocyclic compounds? Give their classification and systematic nomenclature With examples
6. Define and classify heterocyclic compounds with examples and explain aromaticity and Reactivity of Furan, Pyrrole and Thiophene.
7. **Marks**
8. Write the synthesis and chemical reactions of Pyrrole
9. Explain the relative aromaticity and reactivity of Thiophen in contrast to Furan and Pyrrole
10. Write a note on basicity and reactivity of Pyrrole
11. Explain the relative aromaticity and reactivity of Furan in contrast to Thiophene and Pyrrole
12. Write a note on aromaticity and reactivity of Thiophene
13. Discuss the systematic nomenclature of heterocyclic compounds
14. Explain the systematic classification of heterocyclic compounds with example
15. Compare the basicity of Pyrrole with Pyridine
16. Write methods of synthesis and reactions of Furan
17. Explain Paal-Knorr Synthesis of Pyrrole
18. Give any three methods of synthesis of Thiophene
19. Discuss Paal-Knorr Synthesis of Pyrrole.

**2. Marks**

1. What are fused heterocyclic compounds? Give examples
2. Write the structure and uses of Furan
3. Write the resonance structures of Pyrrole
4. Write the structure and medicinal uses of Thiophene derivative
5. Write the resonance structures of Furan
6. Write the structure and medicinal uses of Pyrrole derivative
7. Write the resonance structures of Thiophene
8. Write the structure and medicinal uses of Furan derivative
9. What are Hetero atoms? Name the compounds containing hetero atom
10. Write the structure of five membered heterocyclic compounds containing single heteroatom
11. Write the structure and medicinal uses of drug containing Furan nucleus

**Unit 4**

**5 Marks**

1. Write a note on Fischer-Indole synthesis.
2. Outline the Skraups synthesis of Quinoline
3. Write synthesis and reactions of Imidazole
4. Write the synthesis and reactions of Pyridine
5. Write the method of synthesis and chemical reactions of Isoquinoline
6. Outline the synthesis and reaction of oxazole.
7. Write the method of synthesis and chemical reactions of Thiazole
8. Write the methods of synthesis and chemical reactions of Pyrazole
9. Write synthesis and reactions of Indole
10. Write the method of synthesis and chemical reactions of Quinoline
11. Describe the method of synthesis and reactions of Imidazole.

**2 Marks**

1. Give the reason for basicity of Pyridine
2. Write the structure and medicinal use of drug containing azepine nucleus
3. Write any one method of synthesis of Pyrazole
4. Write the basic structure and uses of Purine
5. Write any one method of synthesis of Acridine
6. Give the basic structure and uses of Pyrimidine
7. Give the basic structure and uses of Azepines
8. Write any one method of synthesis of Pyridine
9. Give the structure and uses of Acridine
10. Write the structure and medicinal uses of drug containing Furan nucleus
11. Give any one method of synthesis of Isoquinoline
12. Write the structure and uses of Pyridine derivatives.

**UNIT 5**

**5 Marks**

1. Explain the mechanism involved in Beckmanns rearrangement
2. Write the Wolff-Kishner reduction reaction
3. Write the Birch reduction reaction
4. Explain the mechanism involved in Schmidt rearrangement
5. Write the mechanism of Oppenauer-oxidation reaction
6. Explain the mechanism involved in Claisen-Schmidt condensation
7. Write the Dakin reaction
8. Write the Dakin reaction and its synthetic applications

**2 Marks**

1. What is Dakin reaction?
2. Give the structure and use of Lithium Aluminium hydride
3. Give the structure and use of Sodium Borohydride
4. What is Oppenauer-oxidation reaction?
5. Enlist the importance of Oppenauer-oxidation reaction
6. Enumerate the synthetic application of Dakin reaction
7. Write Wolff-Kishner reduction reaction
8. Enumerate the application of Oppenauer-oxidation reaction.