**Pharmaceutical Organic chemistry-2**

**B pharmacy 3 semester Questions Bank**

**Unit 1 benzene and its derivatives**

**10 marks**

1. Define activating and deactivating groups with examples. Discuss the Mechanism of Nitration and sulphonation of benzene.
2. Explain the mechanism of halogenation of benzene. Halogens are deactivating Group but ortho & para director. Give reasons.
3. Define the term ‘electrophilic aromatic substitution reaction”. Discuss the Effect of substituent’s on reactivity. Explain the mechanism of Friedel-Craft’s Alkylation with their limitations.
4. What is electrophilic aromatic substitution reaction? Classify substituent Groups with examples, Explain the mechanism of Friedel-Craft’s acylation.
5. What is Electrophilic aromatic substitution reaction? Discuss the mechanism of Nitration and halogenations of benzene.
6. Give the general mechanism of electrophilic aromatic substitution reaction with suitable example, Discuss the orientation effect of i) Hydroxyl group in phenol ii) Nitro group in benzene.

**5 marks**

1. Explain the reaction and mechanism of friedel craft’s alkylation with its Limitations.
2. Explain the reaction and mechanism of halogenation of benzene
3. Explain the reaction and mechanism of nitration of benzene.
4. Explain the mechanism of Friedel-Craft’s acylation.
5. Discuss the orientation effect of Hydroxyl and amino group in benzene.
6. Explain the mechanism of Friedel-Craft’s acylation
7. Explain why Halogens are deactivating but ortho para directions towards Electrophilic substitutions.
8. Explain the reaction and mechanism of nitration of benzene.
9. Define activating and deactivating groups with examples. Discuss the Mechanism of sulphonation of benzene.
10. Explain the aromaticity, orbital picture and resonance structure of benzene.
11. Define friedel craft’s alkylation. Explain the reaction and mechanism.
12. Explain aromaticity and resonance of benzene.

**2 marks**

1. Define the terms ‘aromaticity’ and ‘resonance’.
2. Define electrophiles? Give two examples for electrophiles.
3. Define activating group? Give examples.
4. Define deactivating group? Give examples.
5. What are ortho para directing groups? Give examples.
6. Explain huckel’s rule of aromaticity
7. Write the structure of DDT and BHC. List one use each of DDT and BHC.
8. Write the structure and uses of DDT and cloramine

**Unit-2 phenols, aromatic amines and aromatic acids**

**10 Marks**

1. What are phenols? Give any three methods of preparation of phenol. Write a note on acidity of phenol.
2. What are aromatic amines? Give any three methods of preparation of aromatic amines. Write a note on basicity of aromatic amines.
3. What are phenols? Explain the of reactions of phenol. Discuss the effect of substituent’s on acidity of phenol.
4. What are aromatic amines? Explain the of reactions of aromatic amines. Discuss the effect of substituent’s on basisity aromatic amines.
5. What are aromatic acids? Give any three chemical reactions of benzoic acid. Write a note on substituents on acidity of aromatic acids.
6. A)What are phenols? Explain acidity of phenols B) What are aromatic amines explain basisity of aromatic amines.

**5 marks**

1. What is acidity discuss the effect of sustituent on acidity of aromatic acids
2. What is basicity explain the basisity of aromatic amines tendency of a
3. What are phenols Explain acidity of phenols
4. Give three methods of preparation and three chemical reactions of Aromatic acids
5. Write any three methods of preparation of aromatic amines. Give synthetic uses of aryl diazonium salts
6. Define aromatic acid? Give four chemical reactions of benzoic acid
7. Give the structure and uses of a) phenol b) o-cresol e) resorcinol d) a-napthol e) ß-napthol
8. Define acidity explains the effects of substituents on acidity of aromatic acids.
9. What are phenols? Discuss the acidity of phenols
10. What are aromatic amines? Explain the basisity aromatic amines.
11. Give any two methods of preparation and chemical reactions of aromatic acid.
12. Give any two methods of synthesis of phenols. (Discuss the qualitative test of phenol

**2 marks**

1. Give the structure and uses of phenol and o-cresol
2. Give synthetic uses of aryl diazonium salts
3. Give the structure and uses of a-napthol and resorcinol
4. Give any two chemical reactions of benzoic acid
5. Give the structure and uses of m-cresol and ß-napthol
6. Give qualitative test of phenol

**Unit 3 fats and oil**

**10 marks**

1. What are oils & fats? Give the classification of oils with examples. Enlist the analytical of fats and oils with their significance.
2. Enlist analytical constants of oils and fats. Discuss in detail about acid valve And iodine value and give their significance.
3. Explain drying, semidrying and non-drying oils with examples. Define lodine value. Give the principle involved in the determination of Iodine value (any one method)
4. Explain drying, semidrying and non-drying oils with examples. Define acid value. Give the principle involved in the determination of acid value (any one method)
5. Explain drying, semidrying and non-drying oils with examples. Define Saponification value. Give the principle involved in the determination of Saponification value (any one method)
6. What are fatty acids? Explain significance and reactions of hydrolysis, hydrogenation, rancidity and drying of oils.

**2 marks**

1. Describe any one method to determine Reichert Meissl (RM) value with its significance
2. Describe any one method to determine Acetyl value with its significance
3. Explain the Saponification and Rancidity of oils and their significance.
4. Explain significance and reactions of hydrolysis and hydrogenation of oils and fats
5. Describe any one method to determine iodine value with its significance
6. Describe any one method to determine acid value with its significance

**2 marks**

1. What are fatty acids? Give an example for saturated fatty acids.
2. Give the pharmaceutical applications of fats and oils.
3. Why oils are liquid and fats are solids at room temperature
4. Define saponification value. Give its significance
5. What do mean by Reichert Meissl (RM) value? Give its significance.
6. Define rancidity and drying of oils
7. Define acid value. Give its significance.
8. Define acetyl value. Give its significance
9. Classify fats and oils with examples
10. Define lodine value. Give its significance
11. Define lodine value. Give its significance
12. What are fatty acids? Give an example for unsaturated fatty acids.
13. Write the pharmaceutical applications of fats and oils
14. Write the significance of hydrogenation of fats and oils
15. Define rancidity? Give its significance.
16. Give the compositions of fats and oils.
17. Define saponification value. Give its significance
18. Define lodine value. Give its significance
19. Give the sources of fats and oils

**Unit 4 Poly nuclear hydrocarbans**

**5 marks**

1. Outline the synthesis of Anthracene by Haworth’s method.
2. Outline the synthesis of Napthalene by Haworth’s method.
3. Define and classify poly nuclear hydrocarbons. Give four chemical reactions Of Anthracene
4. Define and classify poly nuclear hydrocarbons. Give four chemical reactions Of naphthalene.
5. Define and classify poly nuclear hydrocarbons. Give four chemical reactions Of Phenanthrene.
6. Define poly nuclear hydrocarbons Give any two synthesis of anthracene.
7. Define poly nuclear hydrocarbons Give any two methods of synthesis of Phenanthrene.
8. Define poly nuclear hydrocarbons Give any two synthesis of naphthalene.
9. Write the any two synthesis and reactions of phenanthrene.
10. Write the any two synthesis and reactions of anthracene.
11. Write the synthesis of anthacene and phenanthrene.
12. Write the structure and medicinal uses of naphthalene, anthracene, Diphenylmethane and phenanthrene.

**2 marks**

1. Write the structure and medicinal uses of diphenylmethane
2. Write any two reactions of phenanthrene.
3. Write any two reactions of Anthracene
4. Write the structure and medicinal uses of phenanthrene derivatives.
5. Write the structure and medicinal uses of triphenylmethane.
6. Write any two reactions of phenanthrene
7. Give the nitration reaction of naphthalene
8. Give the nitration reaction of anthracene
9. Give the halogination reaction of naphthalene
10. Give them any one synthesis of naphthalene
11. Give the structure and uses of one medicinally important phenanthrene derivatives.
12. Define and classify poly nuclear hydrocarbons.

**Unit 5 cycloalkanes**

**5 marks**

1. Discuss the stability of cycloalkanes.
2. Explain Sache- Mohr theory and molecular orbital concept of cycloalkanes.
3. What are cycloalkanes? Write any four methods of preparation
4. Explain Bayer’s strain theory of cycloalkanes. What are its limitations?
5. Write the any two methods of synthesis of cyclobutane and cyclopropane
6. Give them any four chemical reactions of cyclopropane
7. Give them any four chemical reactions of cyclobutane
8. Discuss coulson and moffitt modifications of Bayer’s strain theory of cycloalkanes
9. Define anglestrain? Discuss why higher cycloalkanes are more stable than lower members
10. Give any four methods of synthesis of cycloalkanes.
11. Explain ring opening reactions of cyclopropane.
12. Describe Bayer’s strain theory. What are its limitations?

**2 marks**

1. Define cycloalkane give two examples
2. Define angle strain and tetrahedral angle.
3. Give the reactions of cyclobutane
4. What are coulson and moffitt modifications compound
5. Write preparation of cyclohexane from aromatic compound
6. How do you calculate the angle in cyclobutane
7. Write wurtz’s synthesis of cycloalkane.
8. Why lower cycloalkanes are unstable than higher cycloalkane give reason
9. Give addition reactions of cyclopropanes
10. What is Sache mohr’s theory
11. How do you calculate the angle in cyclopropane
12. How do you synthesize cycloalkanes from aromatic compounds