

M.Sc. Semester-I (C.B.C.S. Scheme) Examination
PHARMACEUTICAL CHEMISTRY
(Organic Chemistry)
Paper—1SA2

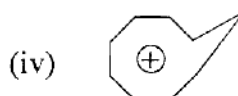
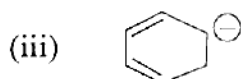
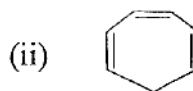
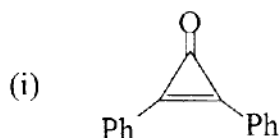
Time : Three Hours]

[Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory.

(2) All questions carry equal marks.

1. (a) Classify the following compounds into aromatic, non-aromatic, antiaromatic or homoaromatic on the basis of Huckel's π electron theory. 6



- (b) Explain the following terms : 5

(i) Resonance

(ii) Hyperconjugation.

- (c) Write a brief note on fullerene. 5

OR

- (p) Discuss in detail alternant and non-alternant hydrocarbons. 6

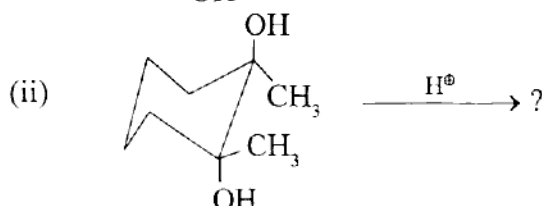
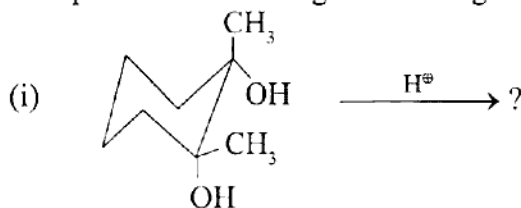
- (q) Explain benzenoid and non-benzenoid aromatic compounds. 5

- (r) Write a brief note on annulenes. 5

2. (a) What is meant by stereospecific and stereoselective synthesis ? Explain by giving examples. 5

- (b) Explain the stereochemistry of allenes and biphenyls. 5

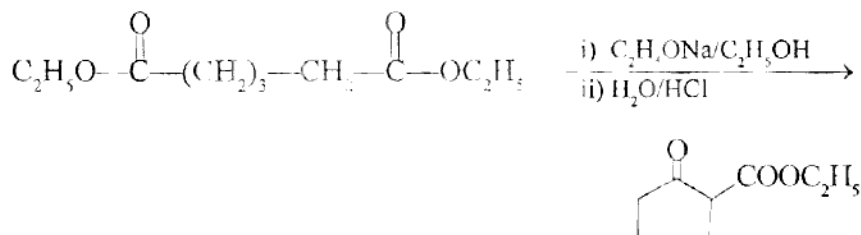
- (c) Complete the following reactions giving mechanism : 6



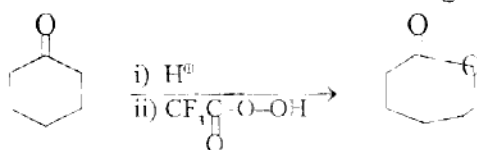
Justify your answer on the basis of effect of conformation on reactivity.

OR

- (p) Write a note on the following : 6
- (i) Threo and erithro isomers
- (ii) Optical purity.
- (q) Write a note on enantiotopic atoms, groups and faces. 5
- (r) Discuss the term 'Asymmetric synthesis' with examples. 5
3. (a) Explain the mechanism of following reaction. Name the reaction : 6



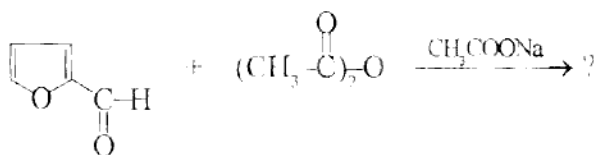
- (b) Explain the Stobbe condensation. 5
- (c) Discuss the mechanism of following reaction : 5



Name the reaction.

OR

- (p) Discuss the mechanism of Beckmann rearrangement. 5
- (q) Explain the following name reactions : 6
- (i) Schmidt
- (ii) Hoffmann.
- (r) Explain the mechanism of following reaction. Give the name of reaction. 5

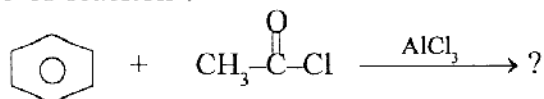


4. (a) Explain the chemistry of imidazole including structure, synthesis and reactions. 5
- (b) Compare the reactivity of pyrrole, furan and thiophene. 6
- (c) Discuss structure determination, preparation and reactions of pyridine. 5

OR

- (p) Discuss the structure, synthesis and reactions of oxazole. 5
- (q) Compare the aromaticity of pyrrole, furan and thiophene. 5
- (r) Write a brief note on : 6
- (i) Pyrazine
- (ii) Pyrazole.

5. (a) Discuss the mechanism of following reaction with energy profile diagram. Mention the name of reaction : 5



- (b) What is electrophilic substitution reaction ? Explain the nitration of nitrobenzene with mechanism. 5
- (c) Explain the kinetics, reactivity and stereochemistry of SN^1 reaction. 6

OR

- (p) Explain sulphonation with mechanism and energy profile diagram. 5
- (q) Discuss the halogenation of Aniline in detail giving mechanism of each step involved. 6
- (r) Write a note on SN^2 reaction. Explain kinetics, reactivity, stereochemistry and energy profile diagram. 5

