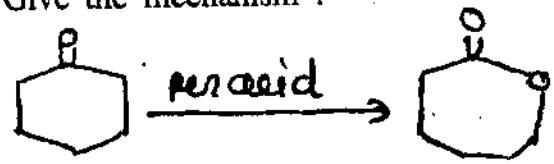
(b) Write the name of following reaction and Give the mechanism :



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(c) Explain the mechanism of Beckmann rearrangement. 5

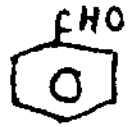
OR

(p) Write an accounts on —

(i) Lossen arrangement.

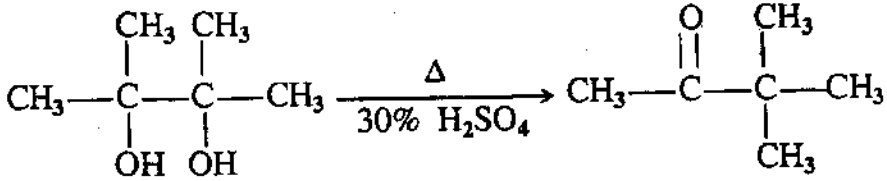
(ii) Curtius rearrangement. 6

(q) Complete the following reactions :—

(i)  + $(CH_3CO)_2O \xrightarrow{A}$ B

(ii) $R-CHO + N_3H \xrightarrow{C}$ D 5

(r) Write the name of following reaction and give its mechanism :—



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AQ – 868

First Semester M. Sc. (Part – I) (CBCS Pattern) Examination

PHARMACEUTICAL CHEMISTRY

Paper – 1 SA 2

(Organic Chemistry)

P. Pages : 6

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions are compulsory.
(2) All questions carry equal marks.

1. (a) Define aromaticity.

Explain with suitable examples, benzenoid and non–benzenoid compounds. 6

(b) Which of the following compounds are aromatic, anti aromatic or non–aromatic ? Explain.

5

(c) Explain with suitable examples alternant and non–alternant Hydrocarbons. 5

OR

(p) Discuss the aromaticity of following :—

(i) Tropylium cation.

(ii) Naphthalene. 6

(q) Explain the following terms :—

(i) Hyper conjugation.

(ii) Homo–aromatic. 5

(r) What are Fullerenes ? Explain how many Hexagonal and pentagonal rings are present in Fullerenes. 5

2. (a) What are conformational isomer ? Discuss the conformational isomer of 5 and 6 membered ring compounds. 6

(b) Explain threo and erythro isomerism with suitable examples. 5

(c) Explain with suitable example stereochemistry of sulphur and phosphorous compounds. 5

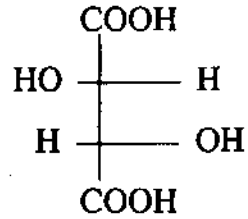
OR

(p) Explain the terms stereospecific and stereo–selective synthesis. 6

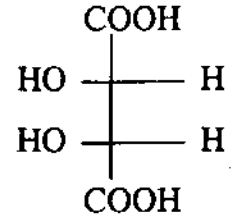
(q) Compare the stability of cyclohexane and cycloheptane on the basis of Baeyer strain theory. 5

(r) Give the RS nomenclature of the following :—

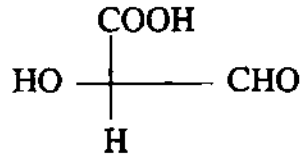
(i)



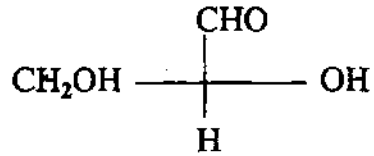
(ii)



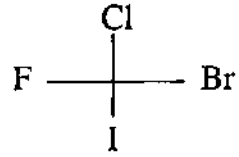
(iii)



(iv)



(v)



5

3. (a) Explain the following terms :—

(i) Stobbe condensation.

(ii) Hoffmann reaction. 6

4. (a) Predict the product and complete the following reactions. Give the comments.

(i)  $+ CH_3COONO_2 \longrightarrow A + B$

(ii)  $\xrightarrow[200\ ^0C]{H_2/Ni}$ C

(iii)  $\xrightarrow[\text{Conc. } HNO_3]{\text{Conc. } H_2SO_4}$ D
at 300 °C

6

(b) Give the methods of preparation of oxazole. 5

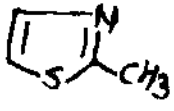
(c) Discuss the Hantzsch thiazole synthesis. What happens when thiazole reacts with $NaNH_2$? 5

OR

(p) Why does pyridine undergo the nucleophilic substitution at 2, 4 and 6-Positions ? 5

(q) Compare and Explain the basic character of Pyrole, Pyridine and Furon. 6

(r) Complete the following reactions. Give your comments in brief :

(i)  $+ C_6H_5-CHO \longrightarrow A + B$

(ii)  $+ (CH_3CO)_2O \xrightarrow{BF_3} C$

5

5. (a) Explain the mechanism of SN^1 reaction with suitable example. Draw the energy profile diagram. 6

(b) Explain why increasing amount of ortho isomers obtained on nitration of following aromatic halides :—

phF ; ph – Cl ; ph – Br ; ph – I 5

(c) What is Halogenation ? Discuss chlorination, Bromination and iodination reactions of benzene. 5

OR

(p) What is Friedal – Craft reaction ? Explain the mechanism of Friedel – Craft alkylation and acylation. 6

(q) Explain various evidences for SN^2 mechanism. 5

(r) Compare the reactivity of toluene and chlorobenzene towards electrophilic substitution reaction. 5