

APRIL/MAY 2013

HCH41 — ORGANIC CHEMISTRY IV

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL the questions.

1. (a) State Huckel's rule. Explain the aromaticity of cyclopentadienyl anion.

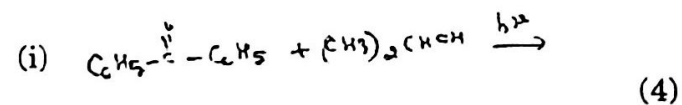
Or

- (b) Explain the aromatic character of furan and thiophene.

2. (a) Draw and explain the Jablonski diagram in photochemical reactions.

Or

- (b) Give the products with mechanism

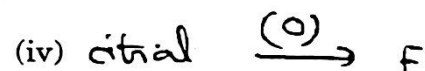
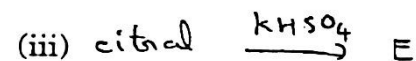
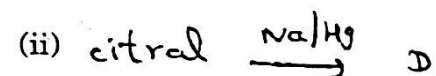
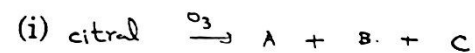


3. (a) Give the structural elucidation of maltose.

Or

(b) Elucidate the structure of Lactose by its various reactions.

4. (a) Identify the products (6)



Or

(b) Give the structural determination of Linalool.

5. (a) How are the following dyes prepared?

(i) Alizarin

(ii) Fluorescein

(iii) Rhodamine B

Or

- (b) With the help of correlation diagram, show that cyclisation of hexatriene to cyclohexadiene on heating proceeds by disrotatory mode. (6)

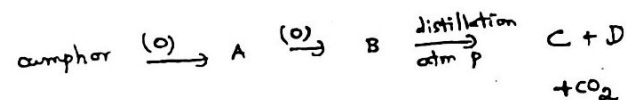
- (b) Explain the following terms with one example for each.

- (i) Chromophore  
 (ii) Bathochromic shift  
 (iii) Hypsochromic shift.

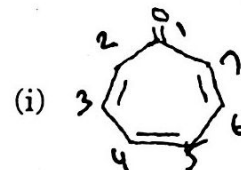
SECTION B — (3 × 15 = 45 marks)

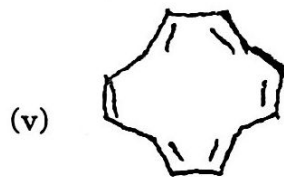
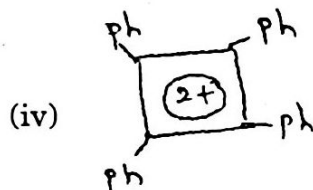
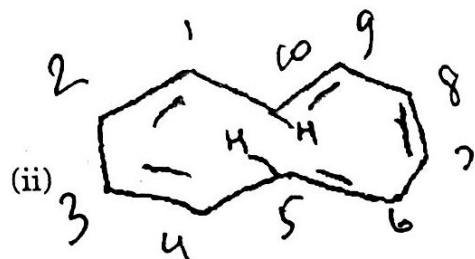
Answer any THREE questions.

6. (a) How will you elucidate the structure of  $\alpha$ -pinene?  
 (b) Identify the products



7. (a) Explain the aromatic character of cyclooctatetraene. (5)  
 (b) Comment on the aromaticity of the following compounds. (10)





8. (a) How will you determine the structure of sucrose by its various reactions? (8)  
 (b) Elucidate the structure of Amylopectin by its reactions. (7)
9. (a) How the dyes are classified according to the method of application? (7)

(b) Give the preparation of the following dyes

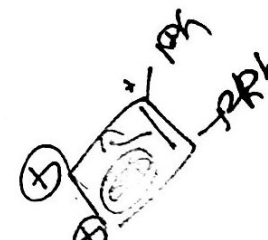
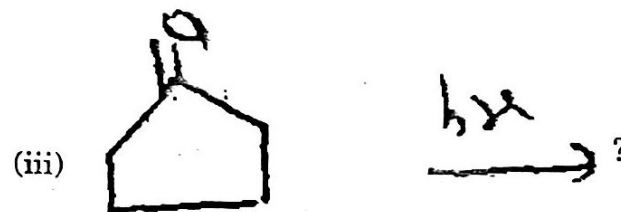
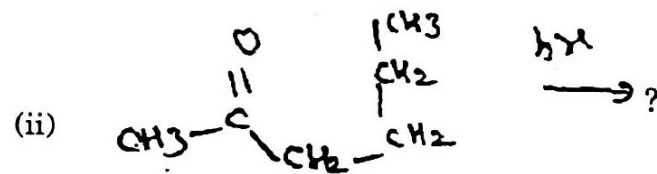
(i) Methyl orange

(ii) Crystal violet

(iii) Rosaniline

(iv) Malachite green

10. (a) Give the products with mechanism



NOVEMBER 2014

PCH41 — ORGANIC CHEMISTRY — IV

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Discuss the aromaticity in benzenoids.

Or

- (b) Define Huckel's rule and explain with suitable examples.

2. (a) Write short notes on the following

- (i) Paterno Buchi reaction  
(ii) Claisen rearrangement.

Or

- (b) Draw Jablonski diagram and explain its significance.

3. (a) Give any one method of synthesis of a tripeptide.

Or

- (b) Write a brief note on Merrifield synthesis.

2045

DR. B.S

4. (a) How do the structure of Chloromycetin is elucidated?

Or

- (b) Explain the method of synthesis of tetracyclines.

5. (a) Discuss the preparation of any two nitroso dyes.

Or

- (b) Discuss the preparation and uses of fluorescein.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. Explain the term non-aromatic and anti-aromatic with suitable examples.
7. Define di pi — methane rearrangement with suitable examples.
8. Describe the biological functions of DNA.
9. How do the structural elucidation of streptomycin is carried out?
10. Explain the preparation and uses of Anthroquinone dyes.

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DRBS 1252157

APRIL/MAY 2014

PCH41 — ORGANIC CHEMISTRY — IV

9. Discuss the structural elucidation and synthesis of tetracyclin.

10. Explain the preparation and uses of the following

- (a) Methyl orange
- (b) Fluorescein
- (c) Crystal violet

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain the aromaticity of system with more than 10 pi electrons.

Or

(b) Discuss the Huckel's rule for aromaticity with example.

2. (a) Write note on the following (3 + 3)

- (i) Peterno-Buchi reaction.
- (ii) Cope rearrangement.

Or

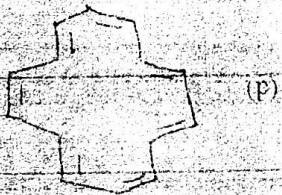
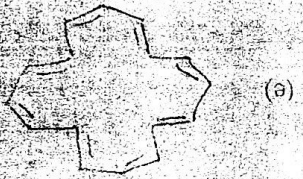
(b) Discuss the following :

- (i) Photoreduction.
- (ii) di pi - methano rearrangement.



- (a) Tertiary structure of protein  
 (b) Types of Nucleic acid

7. Give a detailed account of electro cyclic cycladdition and sigmatropic reactions. (5 + 5)  
 8. Write a note on (8 + 7)



- Identify the following compounds are aromatic or anti aromatic or non aromatic and explain. (5 x 3 = 15)

SECTION B - (3 x 10 = 30 marks)  
 Answer any THREE questions.

- (b) Discuss the preparation and uses of orange blue  
 Or

- (a) Explain the classification of dyes based on chemical structure.

- (b) Write a note on the structure of streptomycin.

- Or  
 (a) Discuss the synthesis of penicillin

- (b) Explain the Merrifield synthesis proteins

- Or  
 (a) Give an account of bio-synthesis of cholesterol.

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APRIL/MAY 2015

PCH41 — ORGANIC CHEMISTRY - IV

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain the term non-aromatic with suitable examples.

Or

- (b) Discuss the aromaticity of non-benzenoid compounds with examples.

2. (a) Write short notes on the following :
- (i) Cope rearrangement
  - (ii) di pi-methane rearrangement.

Or

- (b) Describe the significance of Jablonski diagram.



3. (a) Explain the types of nucleic acids.

Or

- (b) Compare the biological functions of DNA and RNA.

4. (a) How do the structure of penicillin is elucidated?

Or

- (b) Give the method of synthesis of streptomycin.

5. (a) Write short notes on the following :

- (i) Malachite dye  
(ii) Rosaniline Dye.

Or

- (b) Discuss the preparation and uses of Alizarin.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. Enumerate the Aromaticity in Annulenes.

7. Draw correlation diagram for butadiene - cyclobutene system.

8. Give any one method of synthesis of a tripeptide and a peptide.

9. Write the structural elucidation of

- (a) Chloromycetin  
(b) Tetracyclines.

10. Discuss the preparation and the dyeing procedure of nitroso and azo dyes.

Dr. B. S.

APRIL/MAY 2016

PCH41 — ORGANIC CHEMISTRY — IV

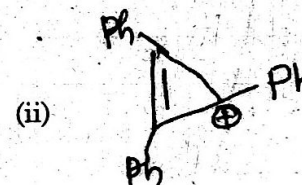
Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain the aromaticity of following.



Or

- (b) Write note on aromaticity of heterocyclic compounds.

2. (a) How will you describe the correlation diagrams for butadiene-cyclobutene system?

Or

- (b) Explain the molecular orbital approach of electrocyclic, cyclo addition and sigmatropic reactions.

3. (a) Discuss the tertiary structure of proteins.

Or

- (b) Explain the bio-synthesis of proteins.

4. (a) Describe the synthesis of penicillin.

Or

- (b) Discuss the synthesis of chloromycetin.

5. (a) Write note on various methods of dyeing.

Or

- (b) Discuss the preparation and uses of methyl orange and crystal violet.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. Discuss the following : (7 + 8)

- (a) Aromaticity of annulenes.

- (b) Aromatic systems with pi electrons numbers other than six.

7. Write note on :

(5 + 5 + 5)

- (a) Photoreduction  
(b) Sigmatropic reactions  
(c) Structure of bulvalene

8. Briefly describe the following :

(5 + 5 + 5)

- (a) Merrifield synthesis  
(b) DNA  
(c) RNA

9. Explain the structural elucidation of Tetracyclines.

10. Discuss the preparation and uses of the following:

(5 + 5 + 5)

- (a) Nitroso dyes  
(b) Rosaniline  
(c) Fluorescein.

Dr. B.S

APRIL/MAY 2017

PCH41 — ORGANIC CHEMISTRY — IV

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) 1,3, 5 - cycloheptatrienyl cation is aromatic but 1,3, 5 - cycloheptatriene is not - Justify.

Or

- (b) Define the term aromaticity. How is it related to Huckel's rule?

2. (a) Describe Paterno-Buchi reaction.

Or

- (b) Discuss the mechanism of cope rearrangement.

3. (a) Write a note on Merrifield synthesis.

Or

- (b) Give the method of synthesis of tripeptide.

4. (a) Give the method of synthesis of chloromycetin.

Or

- (b) Write the structure of the following :

- (i) Tetracycline  
(ii) Streptomycin

5. (a) Give the structure of the following :

- (i) Malachite green  
(ii) Rhodamine - B.

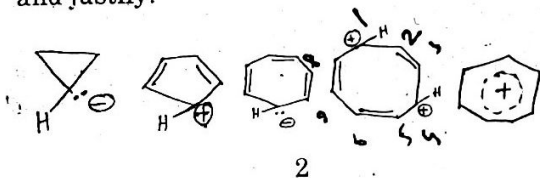
Or

- (b) Discuss the method of preparation of alizarin and give its uses.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. On the basis of the Huckel rule, predict whether the following species are aromatic or antiaromatic and justify.



7. Explain the followings

- (a) Jablonski diagram  
(b) Di pi methane rearrangement

8. Write a note on Biosynthesis of cholesterol.

9. Elucidate the structure of Penicillin.

10. Give the method of preparation of the following dyes and give its uses

- (a) Rosaniline  
(b) Methylorange  
(c) Crystal violet



Dr B3

APRIL/MAY 2018

PCH41 — ORGANIC CHEMISTRY — IV

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain the following compound one aromatic, non-aromatic and anti-aromatic.
- (i) Tropylium ion
  - (ii) Azulene
  - (iii) Pentalene.

Or

- (b) Account for the following observations :
- (i) [10]-Annulene is non-aromatic
  - (ii) Although cyclo octa tetraene contains  $8\pi$  electrons, it is non-aromatic.
2. (a) Discuss in detail the structure of bulvalene.

Or

- (b) How can you explain the molecular orbital approach of the cyclo addition reactions?

3. (a) Write briefly on the synthesis of tripeptide.

Or

- (b) Explain the structure and role of RNA.

4. (a) Discuss the structural elucidation of penicillin.

Or

- (b) Give a brief account on the structure aspects of Chloromycetin.

5. (a) Explain the preparation and uses of triphenyl methane dyes.

Or

- (b) How will you prepare the following dyes?

(i) Methyl Red

(ii) Fluorescein.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. Discuss the aromaticity of the following :

(a) Cyclooctatetraene

(b) Cyclobutadiene

(c) System with more  $10\pi$  electrons.

Briefly explain the molecular orbital approach of the electrocyclic reaction and sigmatropic reactions. (8+7)

8. Write brief note on

(a) Determination of tertiary structure of protein

(b) Biological function of DNA. (8+7)

9. Explain the detail structural elucidation and synthesis of streptomycin.

10. How will you prepare the following dyes and mention their uses.

(a) Fast green

(b) Rhodamine - B

(c) Nitroso dyes

(d) Fast Red. (4+4+4+3)