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RF-3453-54

M. Sc. (Part - I) Examination

April / May – 2010

Organic Chemistry : Paper - II

Time : **3** Hours] [Total Marks : **52**

RF-3453

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M. Sc. (Part - 1)**

Name of the Subject :

☛ **Organic Chemistry : P. - 2**

☛ Subject Code No. : **3 4 5 3** ☛ Section No. (1, 2,.....) : **1**

Seat No. :

Student's Signature

(2) Answer to the **two** sections should be written in **separate** answer book.

(3) Figure to the **right** indicate full marks of the questions.

1 (a) Discuss the role of carbanion in Perkin reaction. **9**

(b) What are carbocations? Give illustration each for 1^o, 2^o and 3^o carbocation.

(c) What are free radicals? How they are generated? Discuss their structures.

OR

1 (a) What are organic reaction intermediates? How they are formed ? Give characteristics of reaction intermediates. **9**

(b) What are carbenes? How they are formed? Explain Reimer-Tiemann reaction.

(c) What are nitrenes? Explain Schmidt rearrangement.

2 (a) What is photochemistry? Give its important applications. **9**

(b) Explain the terms :

(i) Fluorescence and Phosphorescence

(ii) Singlet and triplet states.

(c) Write a note on the Photolysis of 2-hexanone.

OR

2 (a) What are photochemical reactions? How do they differ from thermal reactions? **9**

(b) What is Paterno-Buchi reaction? Discuss its mechanism.

(c) Explain dimerisation of olefins using acetone as photosensitizer.

3 (a) Discuss the double helix structure of nucleic acid. **8**

(b) What is acetolysis? Discuss the importance in determining the structure of cellulose.

(c) Give synthesis of Adenosine.

OR

3 (a) What are nucleic acids? Define structurally DNA and RNA. **8**

(b) Describe the structures of amylopectin.

(c) Give synthesis of ATP and ADP.

RF-3454

Instructions :

(1)

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Name of the Examination :

☛ **M. Sc. (Part - 1)**

Name of the Subject :

☛ **Organic Chemistry : P. - 2**

☛ Subject Code No. : **3 4 5 4** ☛ Section No. (1, 2,.....) : **2**

Seat No. :

Student's Signature

(2) Answer to the **two** sections should be written in **separate** answer book.

(3) Figure to the **right** indicate full marks of the questions.

4 (a) Give preparation and synthetic uses of Frankland compounds. **9**

(b) Discuss the mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds.

(c) Give preparation and synthetic uses of organo-lithium compounds.

OR

4 (a) Discuss the mechanism of metal-hydride reduction of acid and esters. **9**

(b) Discuss synthetic application of organo copper compounds.

(c) What is hydroboration ? Discuss its mechanism.

5 (a) Describe the chemistry of phenazine. 9

(b) Give important methods of preparation and reactions of oxazole.

(c) Give the structure of the followings :

(i) 1, 4 - thiazepine

(ii) 1, 3, 2 - Dioxothiane

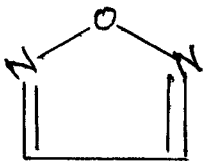
(iii) 5 H-pyrido (2, 3-d) -1, 2-oxazine

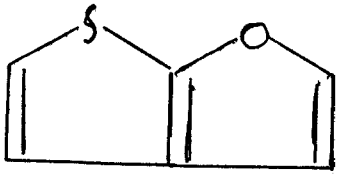
OR

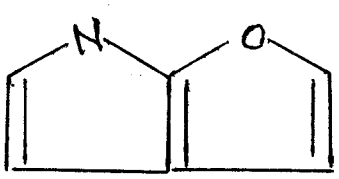
5 (a) Describe the chemistry of isothiazole. 9

(b) Describe the chemistry of phenathiazine.

(c) Using nomenclature rules, give the name of the following structures :

(i) 

(ii) 

(iii) 

6 (a) What is resolution? Give any three methods of resolution of recemates. 8

(b) Discuss the Prochiral relationship with suitable examples.

(c) What is conformation? Discuss conformational analysis of cyclohexane.

OR

6 (a) What is conformation? Discuss conformation of decalin. 8

(b) What is isomerism? Explain dynamic stereochemistry.

(c) Write short note on optical activity of biphenyls.