



RF-3459-60

M. Sc. (Part - I) Examination
April / May - 2010
Organic Chemistry : Paper - IV
(New Course)

Time : 3 Hours]

[Total Marks : 54

RF-3459

Instructions :

(1)

नीचे दर्शाविले निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी.
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. - 4 (New)

Subject Code No. : 3 4 5 9 Section No. (1, 2,.....): 1

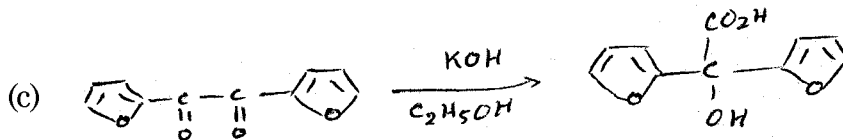
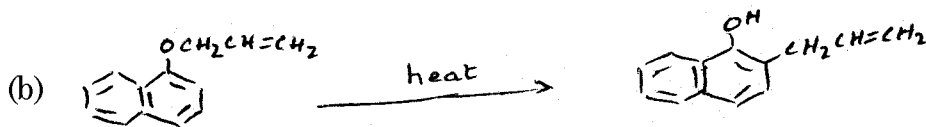
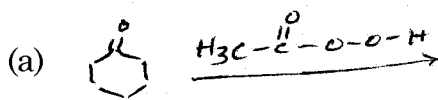
Seat No. :

Student's Signature

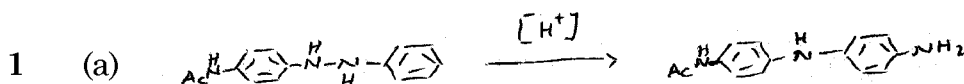
- (2) Answer to the two sections should be written in separate answer books.
- (3) Figure to the right indicate full marks of the questions.

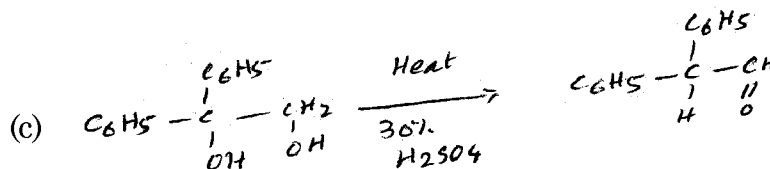
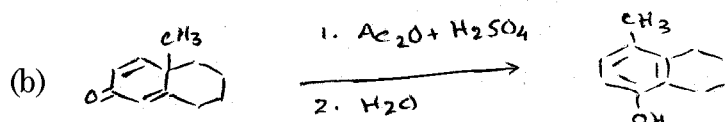
1 Explain the following reactions :

9



OR





- 2 (a) Giving reaction, explain (+)-4-Bromo - 2 pentane forms a racemic product on treatment with NaI. 9
- (b) Giving reaction, explain the acetolysis of 4-methoxybutyl brosylate is 650 times faster than that of n-Butyl brosylate.
- (c) Giving reaction, explain optically active, - threo-3-bromo-2-butanol when treated with HBr gives an equimolar mixture of R, R and S,S enantiomers.

OR

- 2 (a) Giving reaction, explain trans-2-chlorocyclohexanol gives epoxychlohexane in high yield on treatment with a base, where as the cis isomer does not react. 9
- (b) Giving reaction, explain oxygen as a neighbouring group participation.
- (c) Giving reaction, explain optically active, erythro - 3 - bromo - 2 - butanol when reacts with HBr_2 gives meso product.

- 3 Attempt any **three** of the following : 9
- (a) Discuss the mechanism and synthetic application of Arndt - Eistert reaction.
- (b) Discuss the mechanism and synthetic application of Reimer - Tiemann reaction.
- (c) Using Vilsmeier - Hack reaction, give the preparation of p-N, N-dimethylamino benzaldehyde and thiophene - 2 - carboxy aldehyde using suitable starting materials.
- (d) With suitable example and mechanism explain Dakin reaction.
- (e) Using Wittig reaction, give the preparation of α -methylstyrene and 1, 3-diphenylethene.

Instructions :

(1)

नीचे दशांश के निशानीवाणी विगतो उत्तरवही पर अवश्य लખवी. 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. - 4 (New) Subject Code No. : 3 4 6 0 Section No. (1, 2,.....): 2	Seat No. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
	Student's Signature

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

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

- 4 (a) Discuss sigmatropic (3, 3) claisen rearrangement. **9**
 (b) Write note on 1, 3, - dipolar cycloaddition reaction.
 (c) Draw MO for butadiene and hexatriene and comment on their symmetry properties.

OR

- 4 (a) Construct the correlation diagram for 4 s + 2 s cycloaddition reaction and show how it is a thermally allowed system. **9**
 (b) Write note on sigmatropic rearrangements.
 (c) Write note on one reaction.
- 5 (a) Giving examples, explain Huckel's rule for aromaticity. **9**
 (b) Write note on crown ethers and cryptands.
 (c) Write note on inclusion compounds.

OR

- 5 (a) Give the role of NMR spectroscopy in establishing the aromaticity of a compound. **9**
 (b) Write note on cyclodextrins.
 (c) Explain non-aromaticity of cycloheptatrienyl anion, cyclopentadienyl cation and cyclobutadiene.
- 6 Answer any **three** of the following : **9**
 (a) Explain kinetic and thermodynamic control giving example of 3-methyl - 2 - butanone.

- (b) Write Grunwald - Winstein equation and discuss effect of solvent on reaction rate.
 - (c) Derive Hammett equation and explain terms involved in it.
 - (d) Derive Taft equation and explain the terms involved in it.
 - (e) Explain solvolysis of 1-chloro-1-methyl cyclopentane with 80% ethanol at 27°C is 44 times faster than t-butylchloride.
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