



DE-1293

M. Sc. (Sem. - I) [Reg. & Even. Course & Self
Finance Reg.] Examination

March/April - 2016

Organic Chemistry : Paper - II

Time : Hours]

[Total Marks :

Instructions :

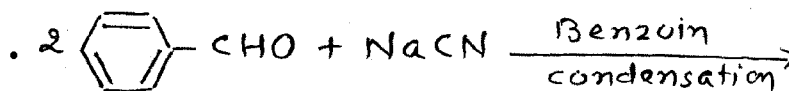
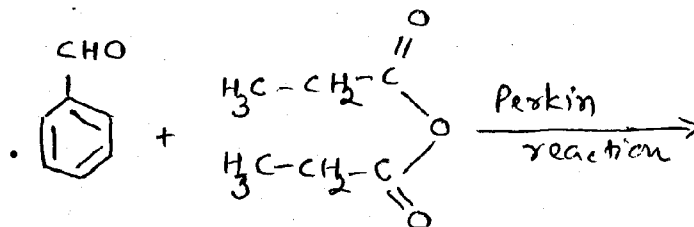
(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="M. SC. (SEM. - 1) [REG. & EVEN. COURSE & SELF FINANCE REG.]"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ORGANIC CHEMISTRY : PAPER - 2"/>	<input type="text" value="Student's Signature"/>
Subject Code No. : <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="9"/> <input type="text" value="3"/> Section No. (1, 2,.....) : <input type="text" value="Nil"/>	

(2) Figures to the right indicate full marks of questions.

1 Answer any three of the following : 18

- (a) What are the halogen carbenes ? Discuss the methods for the formation of halogen carbenes. Explain the mechanism of Reimer-Tiemann's reaction.
- (b) What are carbocations ? Give the illustrations of each 1° , 2° and 3° carbocations; giving the method of generation of carbocations.
- (c) (i) What are free radicals ? Give different methods of generation of short-lived and long-lived free radicals.
(ii) Give end product(s) and mechanism for the following reactions :



- (d) On the basis of pka values of hydrocarbons, explain the stability of carbanions. Explain the role of carbanion as an intermediate in benzoin condensation.

2 Answer any **three** of the following : **18**

- (a) What are cyclo addition reactions ? Explain 1, 3-dipolar cyclo addition reactions.
- (b) Sketch the π -molecular orbitals of 1, 3 – Butadiene and allyl system and give symmetric properties.
- (c) Give characteristics of pericyclic reactions. Give the types of this reaction with illustrations.
- (d) Describe Fieser method for cyclisation of 1, 3, 5 hexatriene and ring opening of 1, 3 cyclohexadiene. Give selection rules for this interconversion.

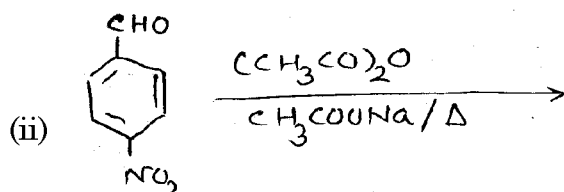
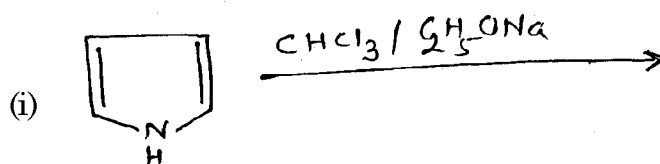
3 Answer any **three** of the following : **18**

- (a) What is prochirality ? Explain the prochirality in 1, 3 – propane dial and prochiral relationship between ethanol and acetaldehyde.
- (b) Discuss the optical activity of biphenyls, allenes and spiranes.
- (c) What is conformational analysis ? Discuss the conformers of decalins.
- (d) Explain dynamic stereo chemistry. Explain the stereo chemistry of compounds containing 'N' atom.

4 Answer any **four** of the following : **16**

- (a) Draw the axial and equatorial bonds in cyclohexane. Explain the different conformations in mono substituted cyclohexane and discuss the stability.
- (b) With the help of correlation diagram show that Diels – Alder reaction is thermally allowed process.

- (c) Complete the following reactions and give reaction intermediate involved in the reactions :



- (d) Discuss the mechanism of the following rearrangements in which carbocation play a key role :

- Pinacol – Pinacolone rearrangement
- Dienone – Phenol rearrangement.

- (e) Complete the following reactions with structural formula :

