



DMM-1565
M. Sc. (Sem. IV) Examination
April/May - 2016
Organic Chemistry : Paper-III
(Rearrangements & Synthetic Approach)

Time : 3 Hours]

[Total Marks : 70

Instruction :

नीचे दशावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
M. SC. (SEM. IV)

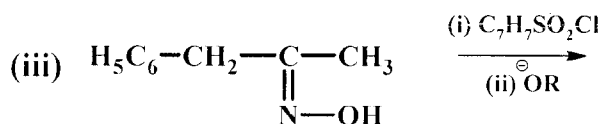
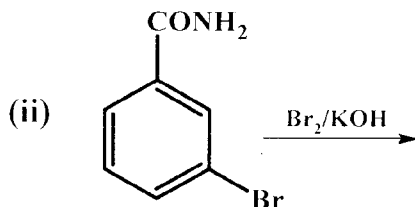
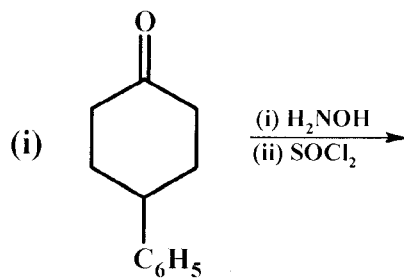
Name of the Subject :
ORGANIC CHEMISTRY : PAPER-III

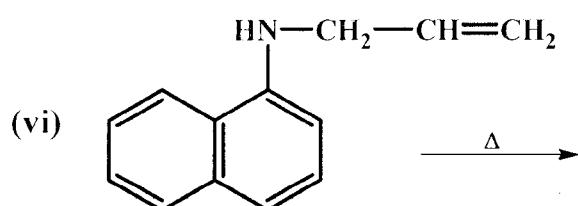
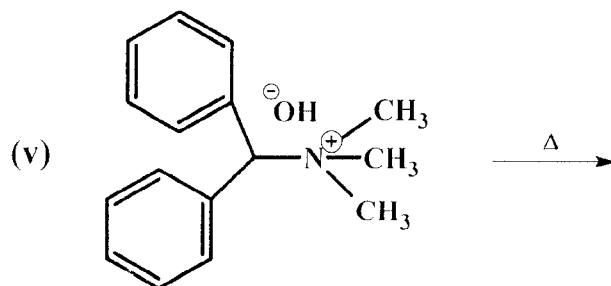
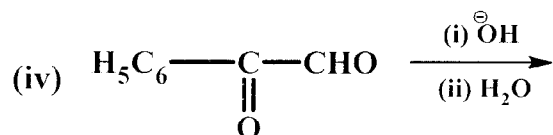
Subject Code No. : **1 5 6 5** Section No. (1, 2,.....): **Nil**

Seat No. :

Student's Signature

1. Give name of the rearrangement, end product(s) and offer suitable mechanism with supporting explanation briefly of **any five** of the following: **18**





2. Answer any **THREE** of the following: 18

(a) What are the needs of protective group in organic synthesis? How carbonyl group is protected using different reagents. Discuss their merits and demerits.

(b) What is meant by retrosynthetic analysis? Explain the following terms with suitable examples:

(i) Retrosynthetic arrow (ii) FGI

(iii) Synthons (iv) Synthetic equivalent

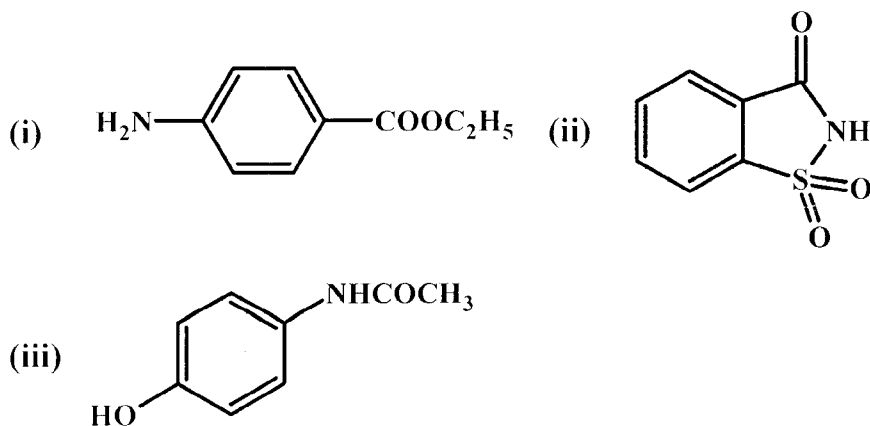
(c) Explain the following transformation using appropriate reagents:

(i) Cyclohexanone \rightarrow 1-(1-hydroxycyclohexyl) ethanone

(ii) Propargyl alcohol \rightarrow 4-Hydroxy-2-butynoic acid

(iii) D-ribose \rightarrow β -Chloro-2, 3, 5-triacetyl-D-ribofuranose

- (d) Give the disconnection and plan the synthesis for the following molecules:

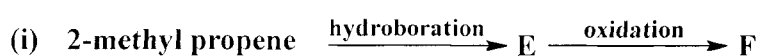


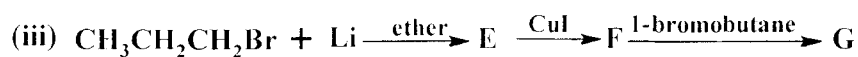
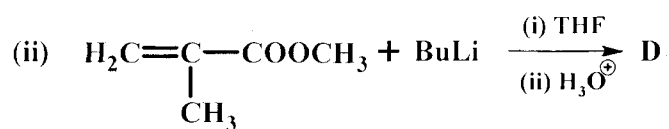
3. Answer any **THREE** of the following: 18

- (a) Give the preparation of 9-BBN. How will you prepare the following using organoborane compounds?
(i) Ketone (ii) Tertiary alcohol (iii) Amine
- (b) Give synthetic applications of organopalladium compounds.
- (c) Give methods for the preparation of dialkylcuprate. Explain the reactions of lithium dialkylcuprate with vinylhalide and allyl acetate giving equations.
- (d) Discuss the application of organozinc compounds in organic synthesis.

4. Answer any **THREE** of the following: 16

- (a) Give mechanism and three synthetic applications of Jacobsen rearrangement.
- (b) Formulate the following reactions stating clearly the reaction conditions and nature of missing products.





(c) Give mechanism and three synthetic applications of Favorskii rearrangement.

(d) Give the disconnection and plan the synthesis for the following molecules:

