



DF-1481

M. Sc. (Sem. III) (SF) (Industrial Chemistry)

Examination

March / April – 2016

Paper - IV : Rearrangements & Synthetic Approach

Time : 3 Hours]

[Total Marks : 70

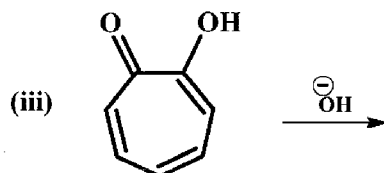
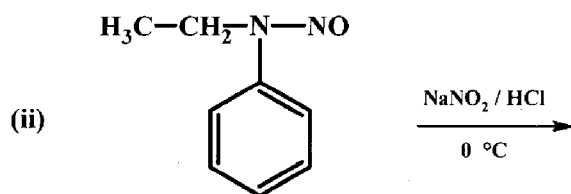
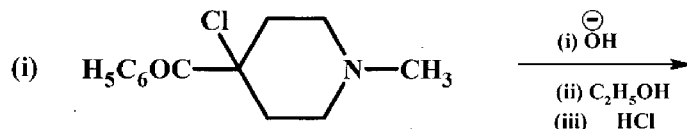
Instructions :

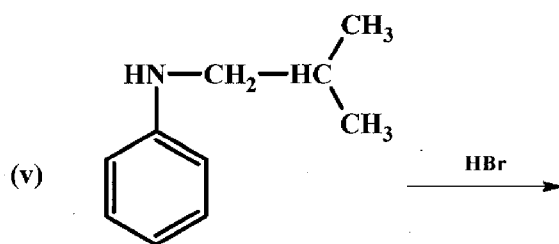
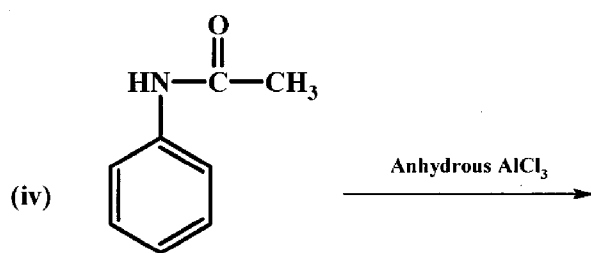
(1)

नीचे दर्शायेव निशानीवाणी विगतो उत्तरवडी पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.		Seat No. :
Name of the Examination : M. SC. (SEM. III) (SF) (INDUSTRIAL CHEMISTRY)		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Name of the Subject : PAPER - IV : REARRANGEMENTS & SYNTHETIC APPROACH		Student's Signature
Subject Code No. : 1 4 8 1 Section No. (1, 2,.....): Nil		

(2) Figures to the right indicate full marks at the quesitons.

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

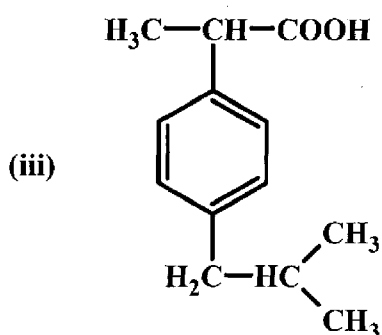
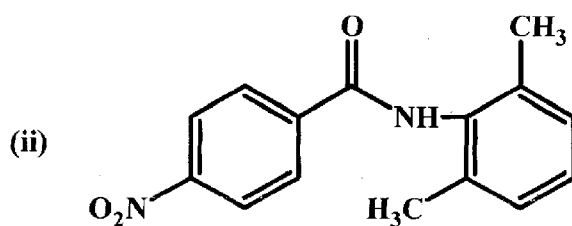
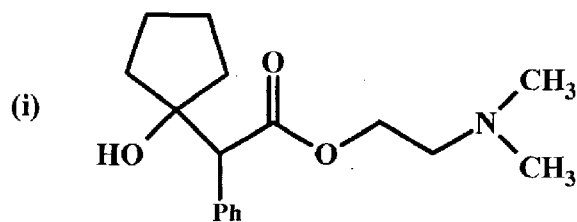




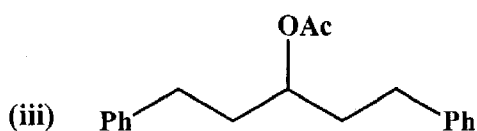
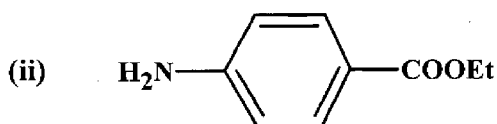
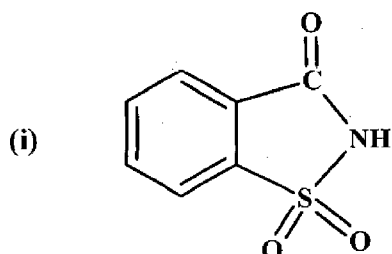
2. Answer any **THREE** of the following:

[18]

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



- (b) How amino group is protected using different reagents? Compare merits and demerits of these reagents.
- (c) What is disconnection? Give the disconnection and plan the synthesis for the following molecules:



- (d) Explain the following transformation using appropriate reagents:
- (i) Cyclopentanone \rightarrow 1-(1-hydroxycyclopentyl)ethanone
- (ii) Methyl 2,2-dimethyl-6-oxocyclohexanecarboxylate \rightarrow (2,2-dimethyl-6-oxocyclohexyl)methyl acetate
- (iii) Propargyl alcohol \rightarrow 4-hydroxy-2-butyric acid

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

- (a) Give preparation and synthetic applications of organocopper compounds.
- (b) Giving mechanism, write synthesis of lithium dialkyl cuprate with synthetic applications.
- (c) What is transmetalation? Give applications of organolithium compound in organic synthesis.

(d) What is hydroboration? Give mechanism of hydroboration. Suggest the method to convert ethane to amino ethane via hydroboration. Describe synthetic importance of carbonylation reaction on organoborane compound with suitable examples.

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

(a) Give mechanism and three synthetic applications of Orton rearrangement.

(b) Give mechanism and three synthetic applications of Demjanov rearrangement.

(c) Give preparation and synthetic applications of organozinc compounds.

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

