This question paper contains **6** printed pages]

# AY—152—2018

## FACULTY OF SCIENCE

## M.Sc. (Second Year) (Third Semester) EXAMINATION

## MARCH/APRIL, 2018

## (CBCS Pattern)

ORGANIC CHEMISTRY

Paper XVII (CH-533/2)

(Organic Synthesis—I)

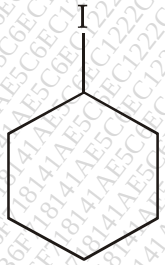
**(Friday, 13-4-2018)** **Time : 2.00 p.m. to 5.00 p.m.**

*Time*—3 *Hours* *Maximum Marks*—75

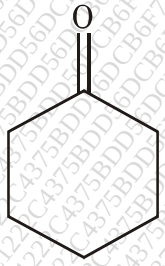
*N.B. :—* (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. Predict the product with mechanism (any *three*) : 15

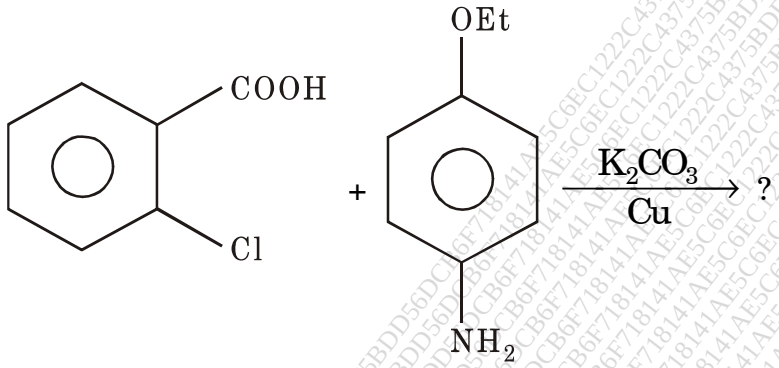
(*a*) 

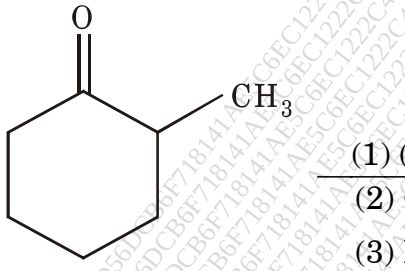
$\xrightarrow{AgNO_2}$ ?

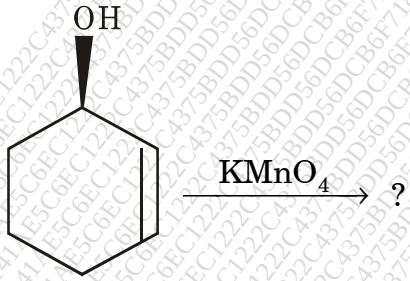
(*b*) 

+ $2N_3H$ $\xrightarrow{H^{\oplus}}$ ?

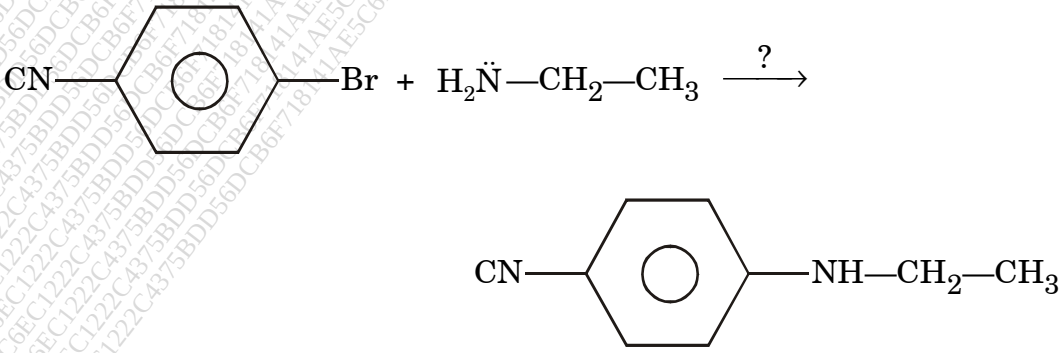
P.T.O.

(*c*) 

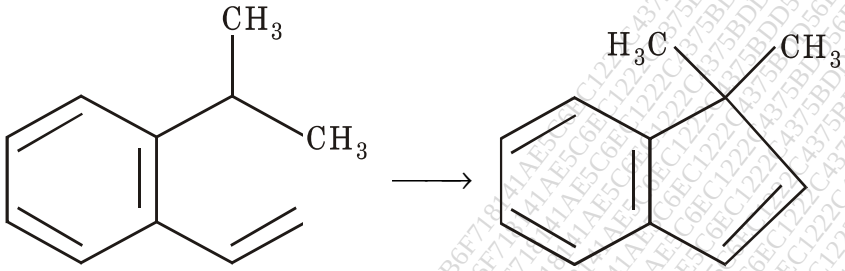

(*d*) 


(*e*) 

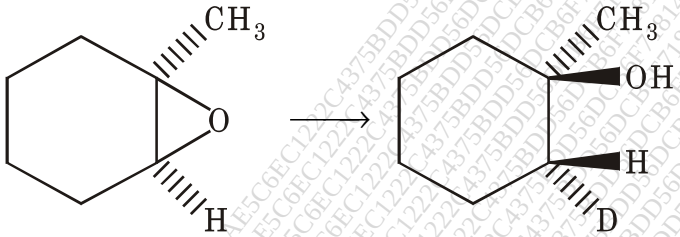

2. Select suitable reagents for the following conversions and give appropriate mechanism (any *three*) : 15

(*a*) 

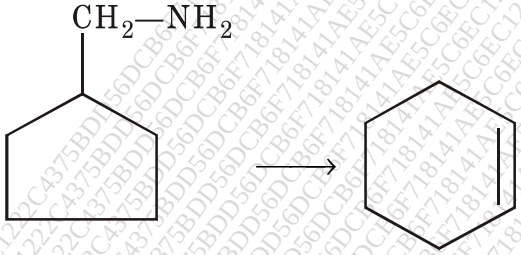
(*b*)



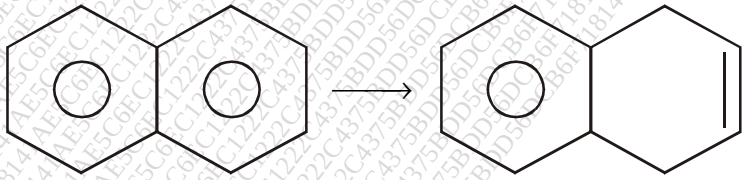

(*c*)




(*d*)




(*e*)



3. Solve the following giving suitable example with mechanism :

(*a*) (*i*) Shapiro reaction 8

(*ii*) Steven's rearrangement.

*Or*

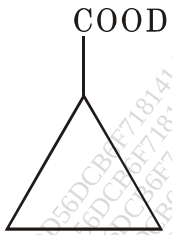
(*i*) N-bromosuccinamide

(*ii*) Osmium tetroxide.

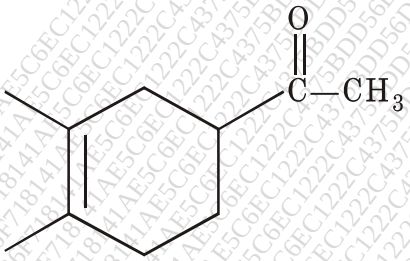
P.T.O.

(*b*) How will you prepare the following using : 7

(*i*) Foverskii rearrangement :



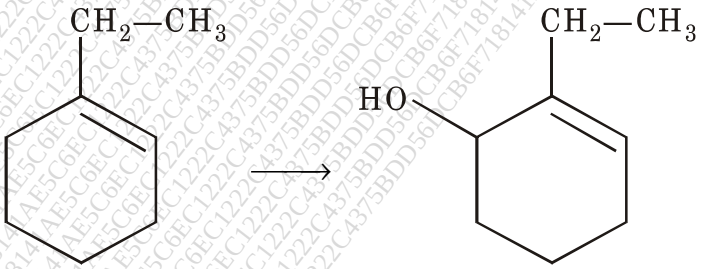

(*ii*) Diels-Alder reaction :



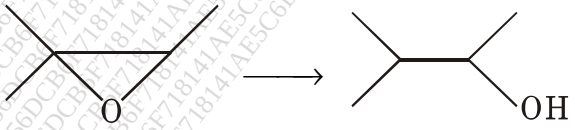

*Or*

Suggest the suitable reagent for the following conversions :

(*i*)




(*ii*)




4. Solve the following :

(*a*) Discuss the following giving suitable example with mechanism : 8

(*i*) Benzidine rearrangement

(*ii*) Cleavage of 1, 2-diols using periodic acid.

*Or*

(*i*) Bucherer reaction

(*ii*) Brich reduction.

(*b*) Explain the following : 7

(*i*) Barton reaction is a photochemical reaction

(*ii*) Tri-nbutyl tin hydride is hydride transfer reducing agents.

*Or*

(*i*) Prevost hydroxylation gives Trans diols

(*ii*) Claisen rearrangement is an example of aromatic rearrangement.

5. (A) Select and write the *correct* answer of the following choices : 5

(*i*) Schmidt reaction is closely related to the :

(*a*) Hofmann

(*b*) Fries

(*c*) Curtius

(*d*) Both (*a*) and (*c*)

(*ii*) NBS is valuable reagent for the bromination of :

(*a*) Phenol

(*b*) Amines

(*c*) Toluene

(*d*) All of the above

(*iii*) ..... dienophile is more reactive in Diels-Alder reaction.

(*a*) $CH_2 = CH_2$

(*b*) $CH_3—CH = CH_2$

(*c*) $CH \equiv CH$

(*d*) $CH_2 = CH—CHO$

P.T.O.

(*iv*) To introduce one equivalent of double bond ..... DDa is required.

(*a*) One

(*b*) Two

(*c*) Three

(*d*) Four

(*v*) ..... reagents converts conjugated olefins into isolated olefins.

(*a*) $LiAlH_4$

(*b*) $AlH_3$

(*c*) $Na/Liq.NH_3$

(*d*) $OSO_4$

(B) Write short notes on the following (any *two*) : 10

(*i*) Neber rearrangement

(*ii*) Diimide reduction

(*iii*) Swern oxidation.