This question paper contains **7** printed pages]

L—192—2019

FACULTY OF SCIENCE

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

MARCH/APRIL, 2019

(CBCS Pattern)

ORGANIC CHEMISTRY

Paper II

(Organic Synthesis)

(Saturday, 27–4–2019) **Time : 2.00 p.m. to 5.00 p.m.**

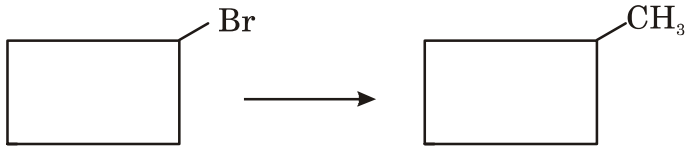
Time—Three Hours *Maximum Marks*—75

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

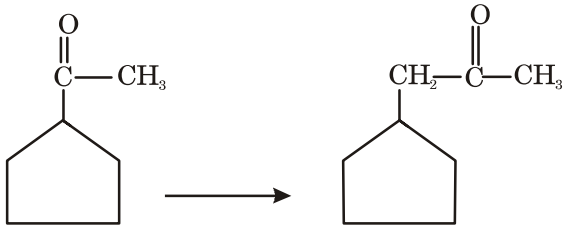
(*ii*) Figures to the right indicate full marks.

1. Write appropriate mechanism for the following conversion using suitable reagents (any *three*) : 15

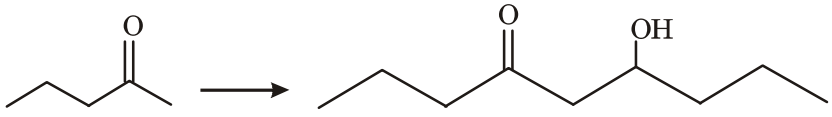
(*a*)



(*b*)



(*c*)



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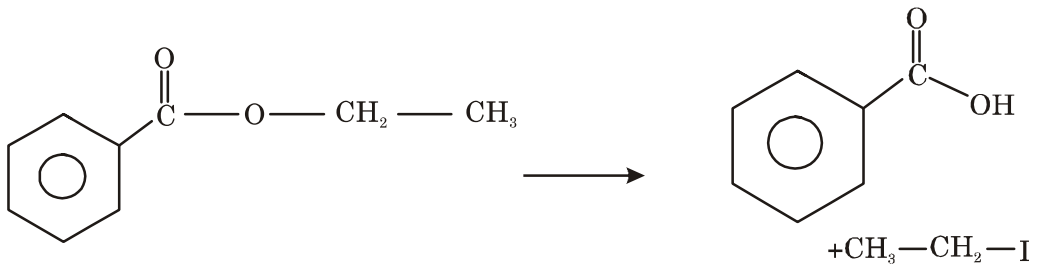
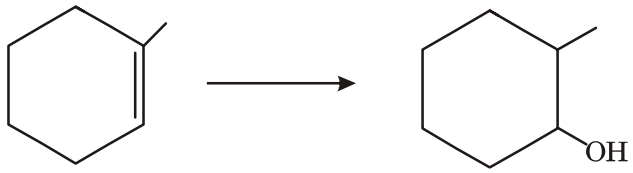
(*d*)

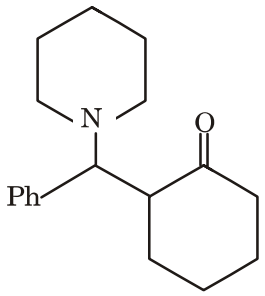


(*e*)

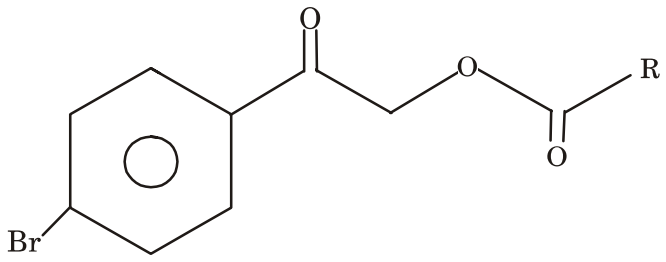


2. Using retrosynthetic analysis suggest a suitable method for synthesis of the following (any *three*) : 15

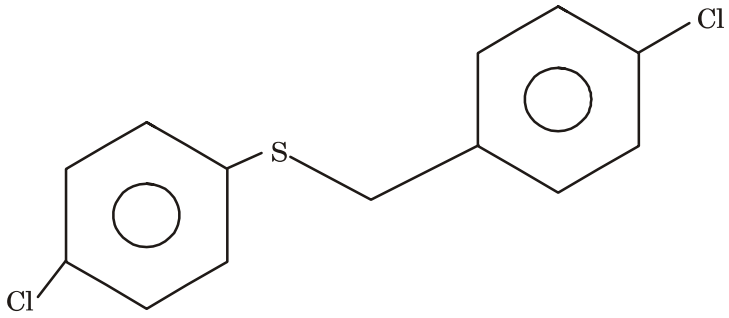
(*a*)



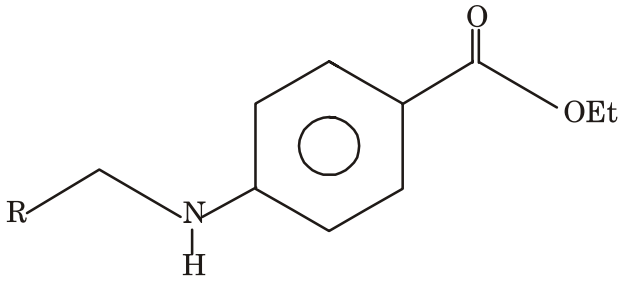
(*b*)



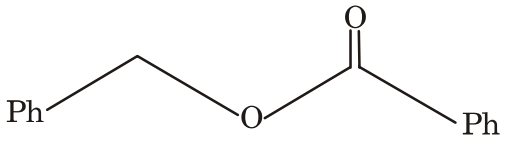
(*c*)



(*d*)



(*e*)



3. Solve the following : 8

(*a*) Explain with suitable example :

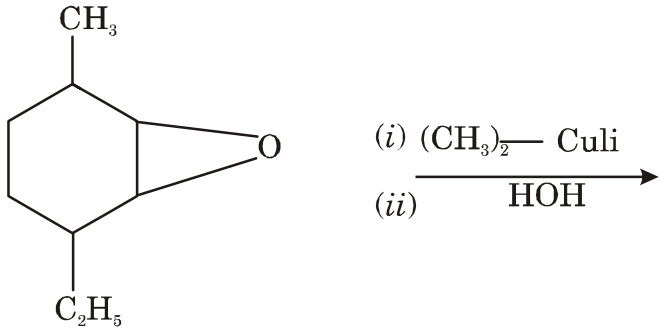
(*i*) regioselectivity

(*ii*) enantioselectivity.

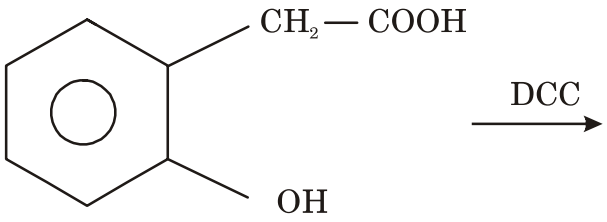
Or

Predict the product with mechanism :

(*i*)

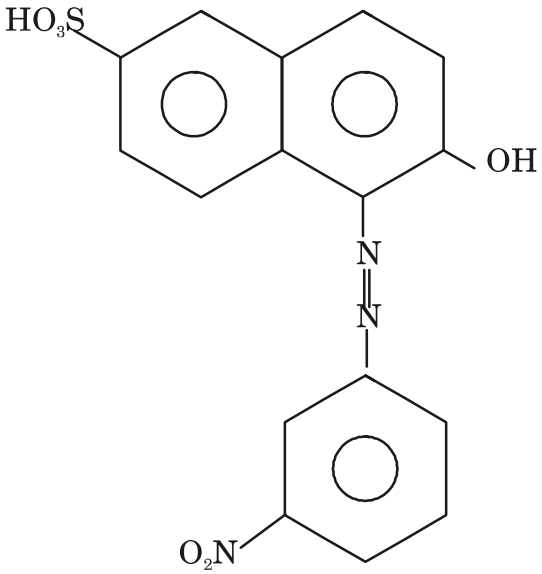


(*ii*)

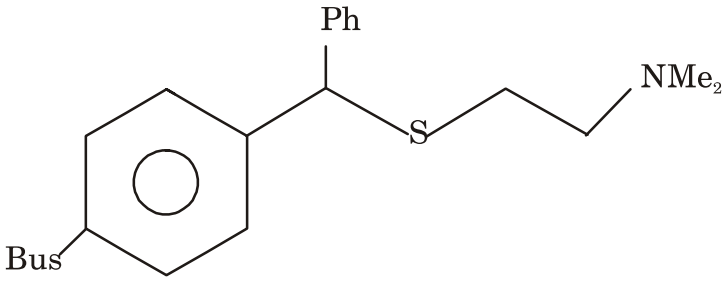


(*b*) Using Retrosynthesis ? suggest suitable method for the synthesis of the following : 7

(*i*)



(*ii*)

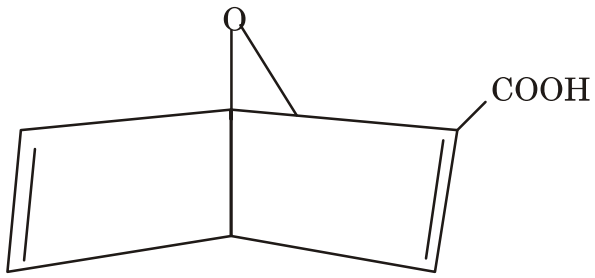


Or

Solve the following :

(*a*) Explain with examples synthesis of five members aromatic heterocyclic ring.

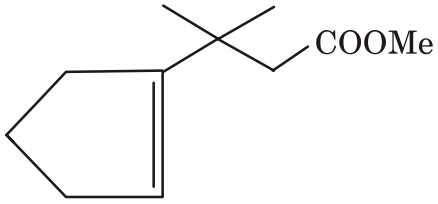
(*b*) Explain the synthesis of the following target molecule using Retro Diels' Alder reaction



4. Solve the following : 8

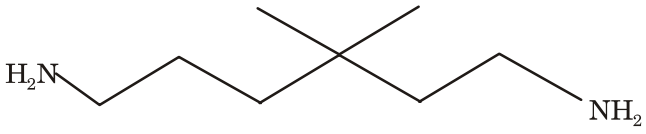
(*a*) How will you synthesis the following using rearrangement :

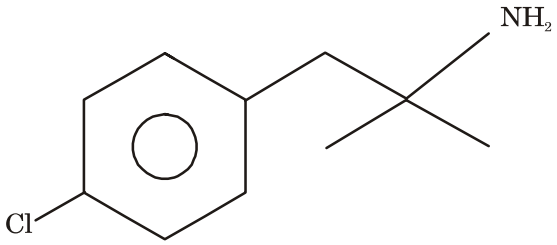
(*i*) $CH_3–CH_2–COO–CH_3$

(*ii*) 

Or

How will you synthesis the following target molecules using aliphatic nitro-compound :

(*i*) 

(*ii*) 

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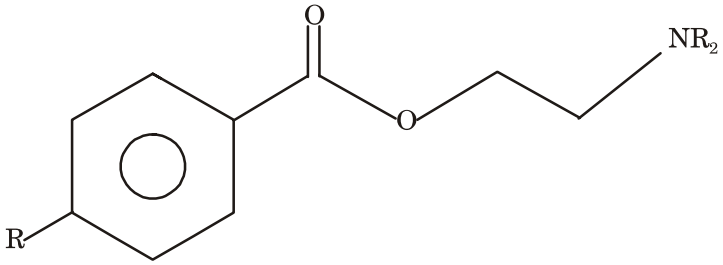
(*b*) Describe the synthesis of camphor. 7

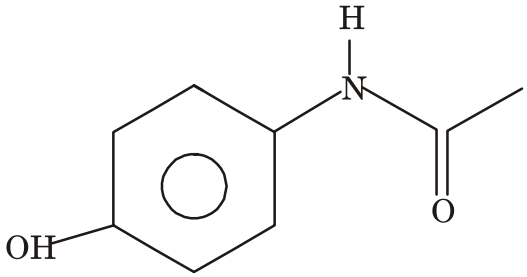
Or

Using the concept of chemoselectivity, how will you synthesize the following compounds :

(*i*)



(*ii*)



5. (A) Select the correct answer from the following alternatives : 5

(*i*) The less reactive acid derivatives is.....

(*a*) R—$CONH_2$ (*b*) R—CO-Cl

(*c*) R—$(CO)_2O$ (*d*) R—COOR

(*ii*) LDC is.....reagent.

(*a*) Electrophilic (*b*) Nucleophilic

(*c*) Free radical (*d*) All these

(*iii*) Synthetic equivalent of H^- ion is :

(*a*) H_2SO_4 (*b*) HNO_3

(*c*) BH_3 (*d*) H_3PO_4

(*iv*) Dithianes are used to protect :

(*a*) Carbonyl group (*b*) Amino group

(*c*) Hydroxy group (*d*) Carboxyl group

(*v*) Synthetic equivalent of CH_3^- is :

(*a*) CH_3—Br (*b*) CH_3—Cl

(*c*) CH_3—Li (*d*) Both (*b*) and (*c*)

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

(*a*) Use of acetylene inorganic synthesis.

(*b*) Synthesis of six memberd Hetrolyclic ring.

(*c*) Synthetic equivalent.