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

BR—295—2016

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2016

(CBCS Course)

CHEMISTRY

Paper CH-543/2

(Organic Synthesis—II)

(Tuesday, 22-11-2016) **Time : 2.00 p.m. to 5.00 p.m.**

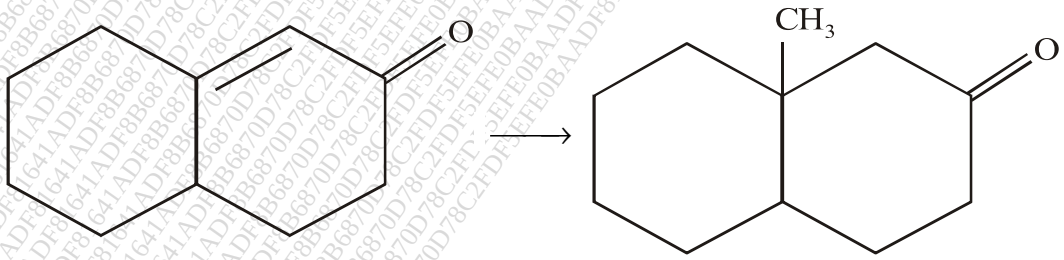
Time—Three Hours *Maximum Marks*—75

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

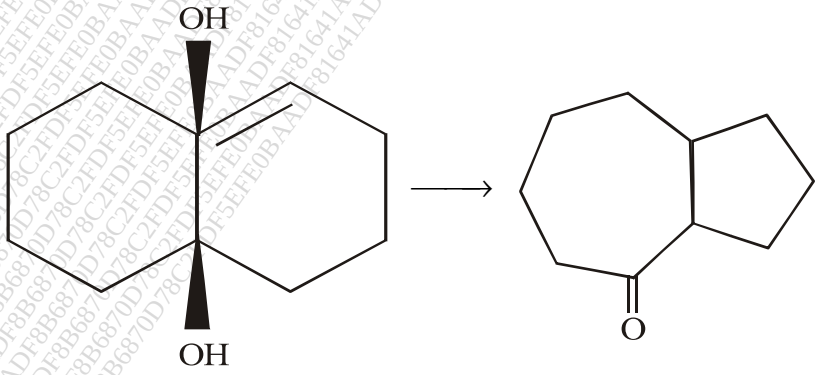
(*ii*) Figures to the right indicate full marks.

1. Complete the following conversions by giving suitable reagents (any *three*) : 15

(*a*)



(*b*)



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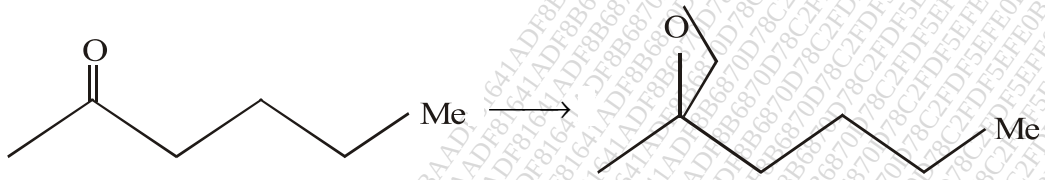
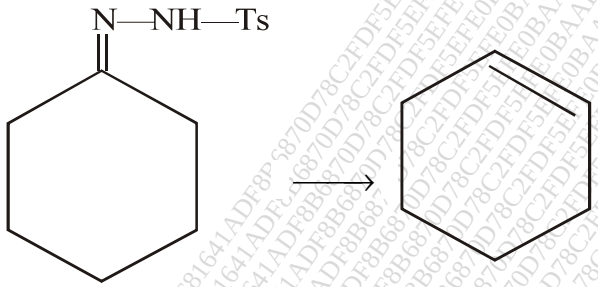
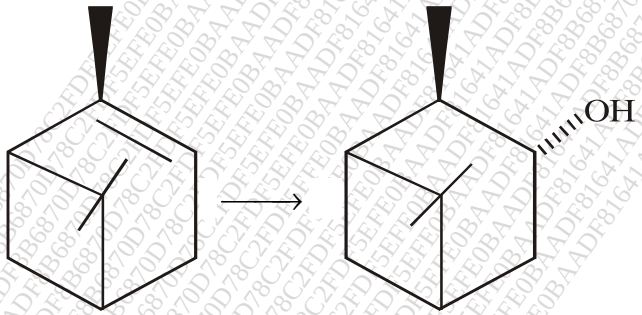
(*c*)



(*d*)

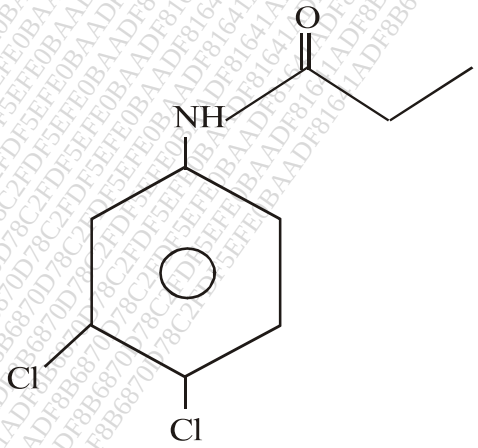


(*e*)

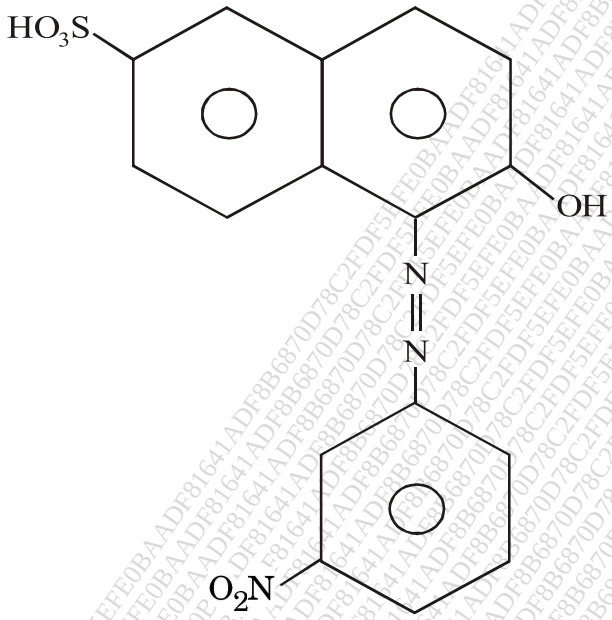


2. By using retrosynthetic analysis suggest a suitable method for the synthesis of the following (any *three*) : 15

(*a*)

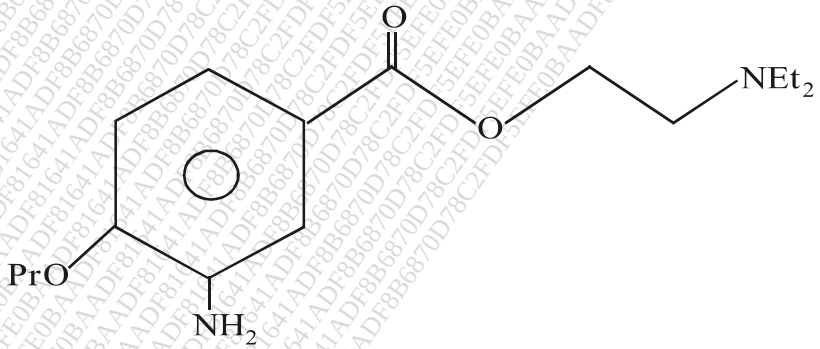


(*b*)

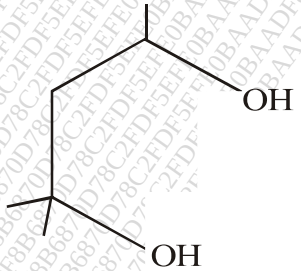


(*c*)

(*d*)



(*e*)



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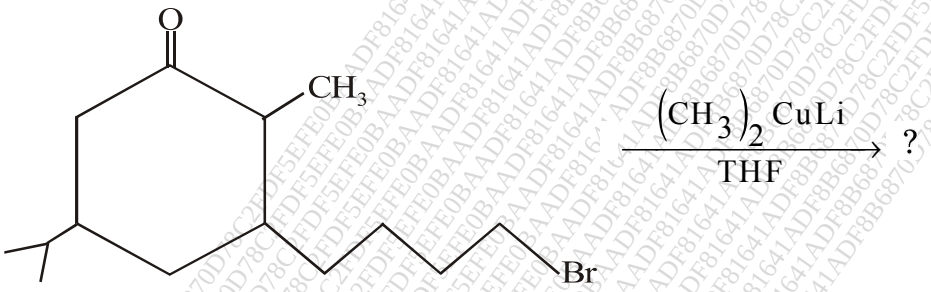
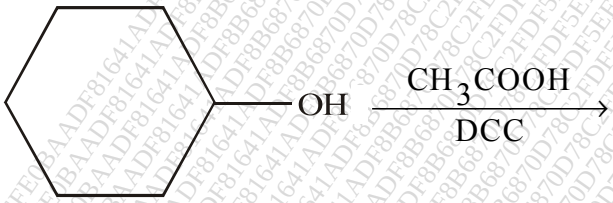
3. (A) Predict the products : 8

(*a*)



(*b*)



Or

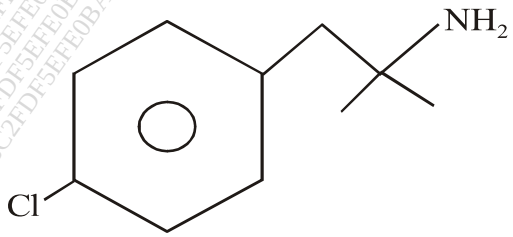
Describe the use of diazomethane and PPA in organic synthesis.

(B) Describe the retrosynthetic analysis of camphor. 7

Or

(*a*) Describe regioselectivity of Diels-Alder reaction.

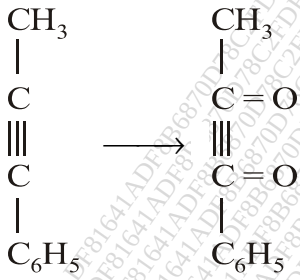
(*b*) Use of nitro compound in the synthesis of :



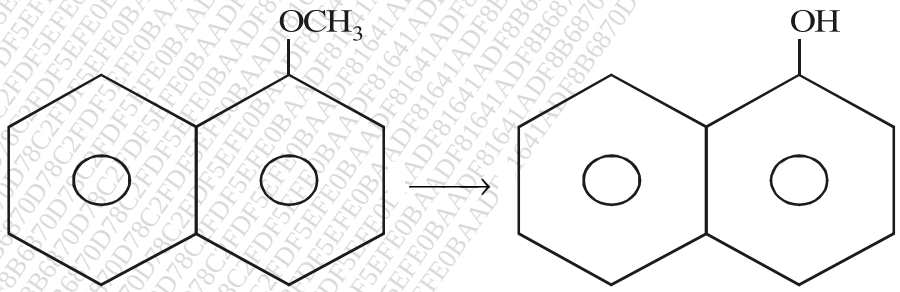
4. Answer the following :

(*a*) Suggest suitable reagent for the following conversion and justify with mechanism : 8

(*i*)



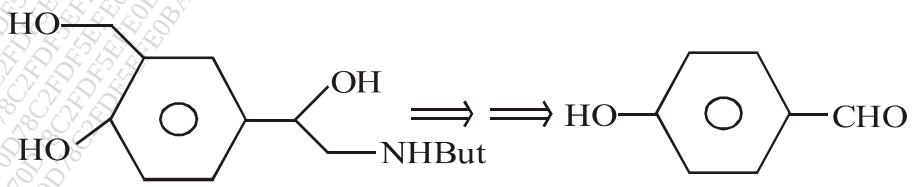
(*ii*)



Or

Suggest the suitable pathway for the synthesis of the following compounds :

(*i*)



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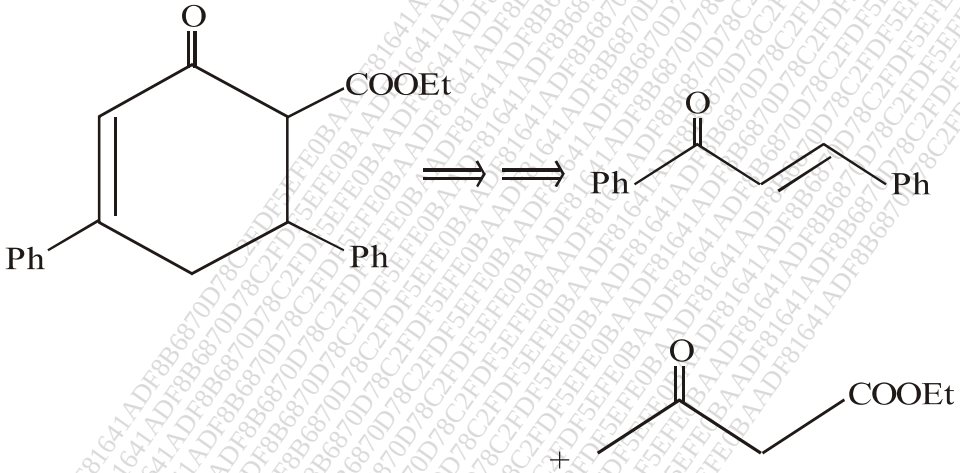
(*ii*)

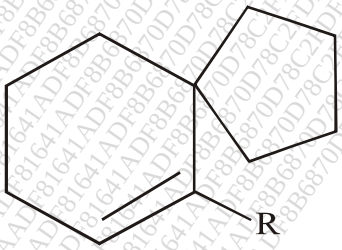


(*b*) Discuss the protection of amino group and carbonyl group using suitable example. 7

Or

Design the synthesis of the following compounds by using rearrangement reaction :

(*i*)



(*ii*) RCH_2COOMe.

5. (A) Select the correct alternative from the following choices : 5

(*i*) Carbonyl compound can be protected by ..... .

(*a*) Acetal (*b*) Acetyl

(*c*) Methyl (*d*) Benzyl

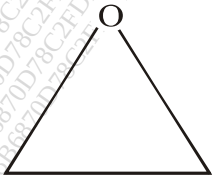
(*ii*) The more reactive acid derivative is ..... .

(*a*) $R-\overset{\overset{O}{\|}}{C}-NH_2$ (*b*) $R-\overset{\overset{O}{\|}}{C}-Cl$

(*c*) $(RCO)_2O$ (*d*) $RCOOR^1$

(*iii*) The synthon $HO-CH_2-\overset{+}{C}H_2$ its equivalent reagent is ..... .

(*a*) $HO-CH_2-CH_2-Cl$ (*b*) $CH_2 = CH_2$

(*c*) CH_3-CHO (*d*) 

(*iv*) 1, 5 difunctionalized compound produce synthon as ..... .

(*a*) Michael accetpor (*b*) Epoxide

(*c*) Aldehyde (*d*) Carboxylic acid

(*v*) DCC is ..... reagent.

(*a*) Oxidizing (*b*) Dehydrating

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

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

(*a*) Robinson annelation

(*b*) LTA

(*c*) Synthesis of five membered aromatic heterocyclic compound.