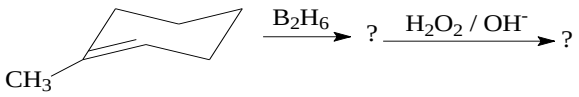
SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with A+ Grade by NAAC)
Chromepet,
Chennai — 600 044.
M.Sc. END SEMESTER EXAMINATIONS APRIL - 2022
SEMESTER – II
20PCHCT2004 – ORGANIC CHEMISTRY-II

Total Duration : 3 hrs **Total Marks : 60**

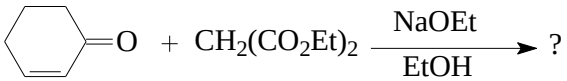
Section A

Answer any ***SIX*** questions (6 x 5 =30)

1. (a) Explain the mechanism of the following reaction. (3)



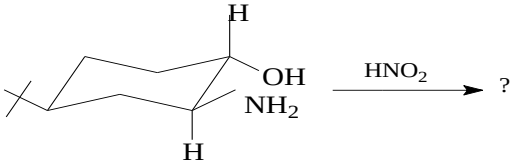
(b) Sketch the mechanism of the following reaction. (2)



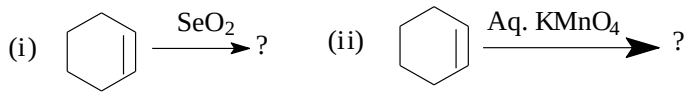
2. Apply the principle of orientation of E2 reaction and explain the following observations.
"Neomenthyl chloride undergoes dehydrochlorination when treated with sodium ethoxide in ethanol at a much faster rate than does menthyl chloride under similar conditions. Furthermore, neomenthyl chloride yields a mixture of 75% 3-menthene and 25% 2-menthene, whereas menthyl chloride produces only 2-menthene".

3. Show the mechanism of Paterno - Buchi and Barton reaction**.**

4. (a) Illustrate the mechanism of the conversion of 1,7,7'-trimethyl bicycle[2,2,11-4]heptan-2-ol into 2,2'-dimethyl-3-methylidene bicycle [2,2,11-4] heptane? (3)
(b) Predict the product with mechanism. (2)

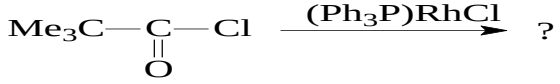


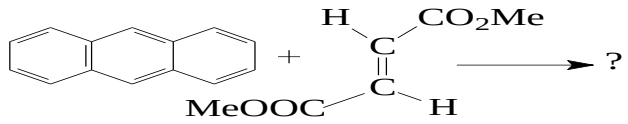
5. Predict the product and sketch the mechanism of the following reactions.



contd…

6. Predict the product and give mechanism.

(i) 

(ii) 

7. Explain the mechanism, orientation and reactivity of E2 reaction with suitable example.

8. Sketch the mechanism of *para*-Claisen and Cope rearrangements.

Section B

Part A

Answer any ***TWO*** questions (2 x 10 =20)

9. Explain the mechanism of the following reactions. (5+5)
   (i) Simmons smith reaction
   (ii) Stobbe condensation

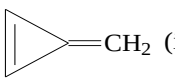
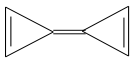
10. (a) "The *erythro*-isomer of 1-bromo-1,2-diphenylpropane undergoes base induced dehydrobromination at a much slower rate than the *threo*-isomer does". Justify. (6)

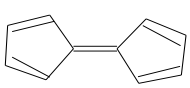
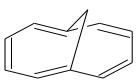
    (b) Predict the product of the following. (4)

    (i) Isobutane $\xrightarrow[250^{o}-400^{o}C]{Cl_2}$?

    (ii) n–butane $\xrightarrow[\text{light, } 127^{o}C]{Br_2}$?

11. Predict the aromaticity of the following compounds. (5x2)

    (i)  (ii) 

    (iii)  (iv)  (v) 14– Annulene

12. Deduce the mechanism of the following rearrangements. (5+5)
    (i) von-Ritcher (ii) Favorski

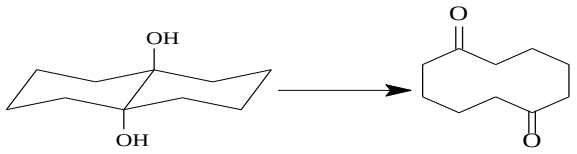
contd…

Part B

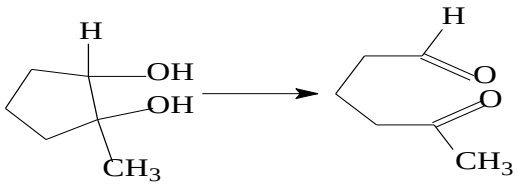
Compulsory Question (1 x 10 = 10)

13. (a) Apply a suitable reagent for the following conversions and predict its mechanism. (6)

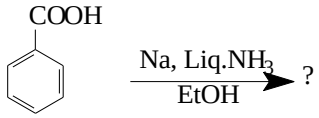
(i)



(ii)



(b) Predict the product and give its mechanism. (4)



*****