

Reg. No. : .....

Name : .....

First Semester M.Sc. Degree Examination, August 2021

Chemistry/Polymer Chemistry

CH/CL/CM/CA/PC 212 : ORGANIC CHEMISTRY — I

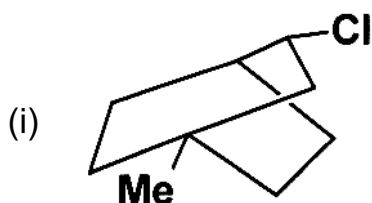
((Common for Chemistry (2016-2019 Admission), Polymer Chemistry (2018 Admission - 2019 Admission) and Applied Chemistry (2016 Admission Onwards))

Time : 3 Hours

Max. Marks : 75

Answer **any two** among (a), (b) and (c) from each questions. Each sub-question carries **2** marks.

1. (a) Write the IUPAC names for the following compounds



(b) What is meant by axial chirality? Give one example.

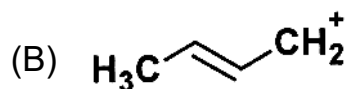
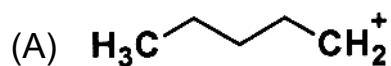
(c) How many stereoisomers are present in Ibuprofen.

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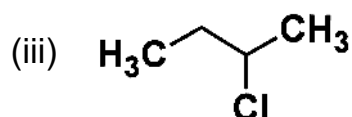
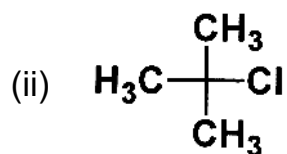
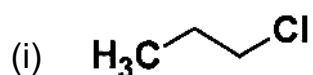
2. (a) Give an example for stable free radical.

(b) Which is more stable A or B? Why?



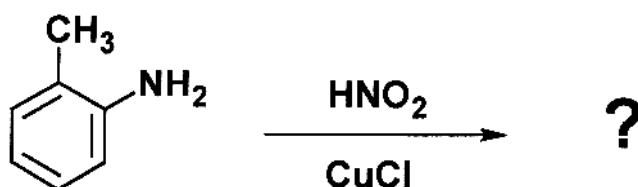
(c) Why 2, 6-ditert butyl aniline is less basic than aniline? Explain.

3. (a) Among the following substrates, which one undergoes  $\text{S}_{\text{N}}1$  reaction at the faster rate?



(b) Write a reaction which adopt  $\text{S}_{\text{N}}2'$  mechanism.

(c) What is the major product(s) for the following reaction :

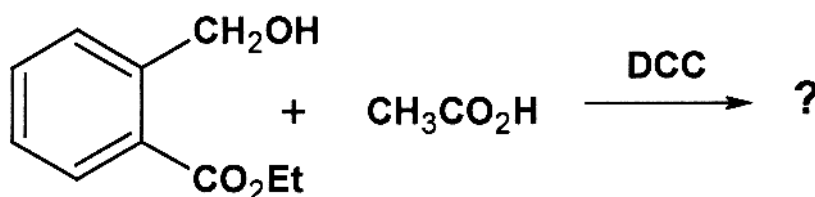


4. (a) Account for the following :

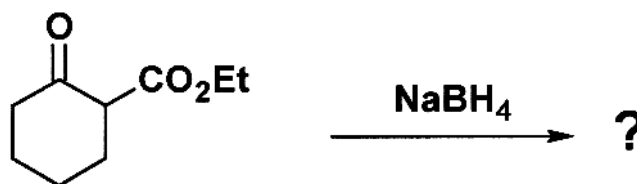
Elimination of HBr from meso-1, 2-dibromo 1, 2-diphenylethane gave cis-2-bromo stilbene.

- (b) What is meant by crossed aldol condensation?  
(c) Give an example for perkin reaction.

5. (a) Complete the following reactions :



- (b) How do you convert cyclohexanone to cyclohexane-1, 2-dione?  
(c) Write the product(s) for the following reaction :



(10 × 2 = 20 Marks)

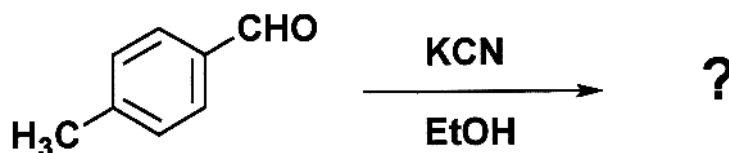
### SECTION – B

Answer either (a) or (b) from each question. Each sub-question carries 5 marks.

6. (a) Discuss prostereoisomerism and stereotopicity with suitable examples.  
(b) Explain the cotton effect.
7. (a) Write down any three methods of generation of nitrenes.  
(b) Explain how inductive, mesomeric and steric effects control the stability of carbocation.



8. (a) Discuss acid catalysed tetrahedral mechanism for esters.  
 (b) Describe  $S_Ni$  mechanism with suitable examples.
9. (a) Complete and propose suitable mechanism for the following reactions :

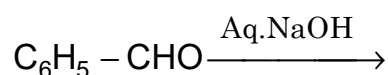


- (b) What is cis elimination? Explain with examples.
10. (a) Describe Mc Fadyan – Stevens Reaction.  
 (b) How do you convert acid halide to aldehyde? Explain the mechanism.  
**(5 × 5 = 25 Marks)**

### SECTION – C

Answer **any three** questions. **Each** question carries **10** marks.

11. Discuss the conformations of n-butane with illustration.
12. Describe the generation stability and insertion reactions of carbenes.
13. What are non-classical carbocations? Discuss three reactions and their mechanism involving above species.
14. (a) Predict the product(s) and propose suitable mechanism of following reactions :



- (b) Explain Darzen reaction with suitable example.
15. (a) How do you prepare DDQ? Explain two reactions involving DDQ.  
 (b) Explain LTA assisted oxidation reactions.

**(3 × 10 = 30 Marks)**

