

Q.P. Code : 60762

Second Semester M.Sc. Degree Examination, July 2019

(CBCS Scheme)

Chemistry

Paper C 202 - ORGANIC CHEMISTRY - II

Time : 3 Hours]

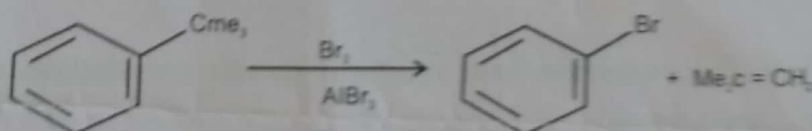
[Max. Marks : 70

Instructions to Candidates : Answer Question Number 1 and any FIVE of the remaining.

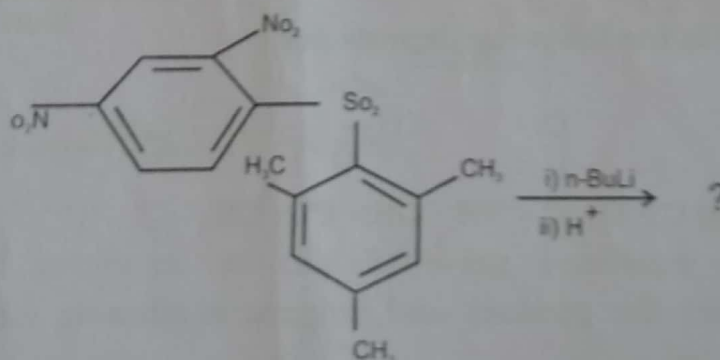
1. Answer any TEN of the following questions : (10 × 2 = 20)

(a) Nitration of anisole occurs at 0°C whereas nitration of nitrobenzene requires higher temperature of 80°C. Justify.

(b) Outline the mechanism of the following reaction :



(c) Predict the product in the following reaction and propose the mechanism :

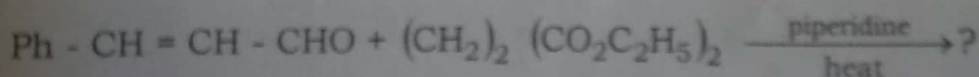


(d) Bromination of fumaric acid produces miso-dibromoproduct. Account for this observation.

(e) Write the structures of the product/s in the following reaction :



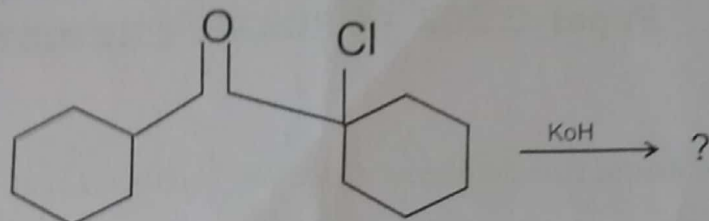
(f) Predict the product and name the reaction.



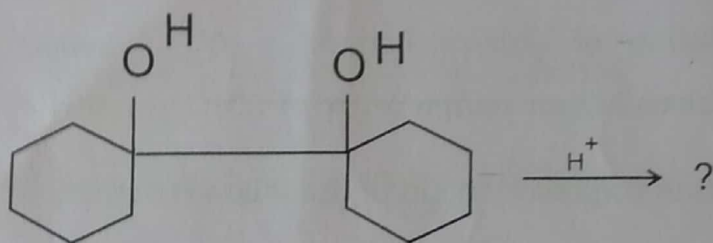
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(g) Cis-isomer of 4-t-butylcyclohexyl-p-toluene sulphonate undergoes E2 reaction to form 4-t-butylcyclohexane while trans-isomer does not undergo elimination. Give suitable explanation.

(h) Predict the product and prepare the mechanism :



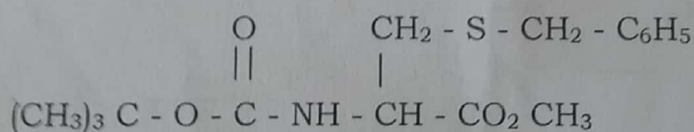
(i) Draw the structures of the product/s in the following reaction :



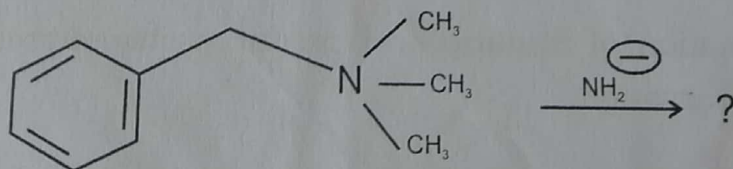
(j) Give the equation and reaction conditions for deamination reaction of an α -amino acid.

(k) Outline the cyanogen bromide method for the cleavage of peptide bond.

(l) How is the following deprotected?



2. (a) Predict the product and suggest a suitable mechanism for the following reaction :

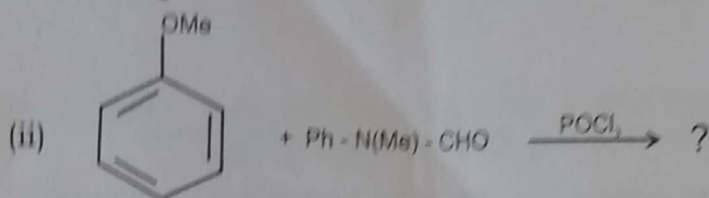
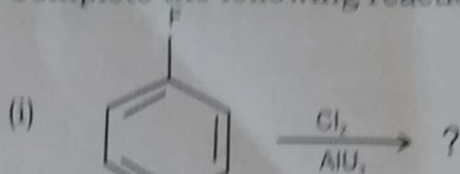


(b) Outline the benzene mechanism of aromatic nucleophilic substitution using ortho - and meta-bromotoluenes.

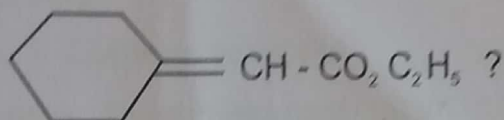
(c) Explain use of deuterium labeling experiments in establishing the two step mechanism of aromatic electrophilic substitution. (3 + 4 + 3)

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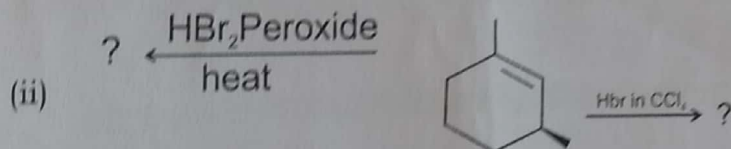
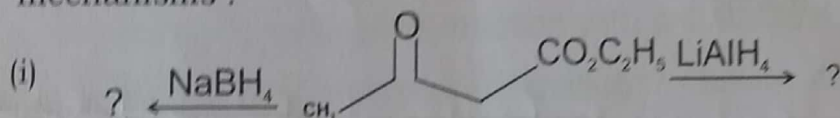
3. (a) Complete the following reactions and give their mechanism :



(b) Explain Wittig reaction. Give its mechanism. How would you synthesize? (6 + 4)

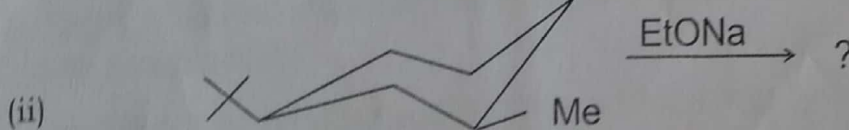
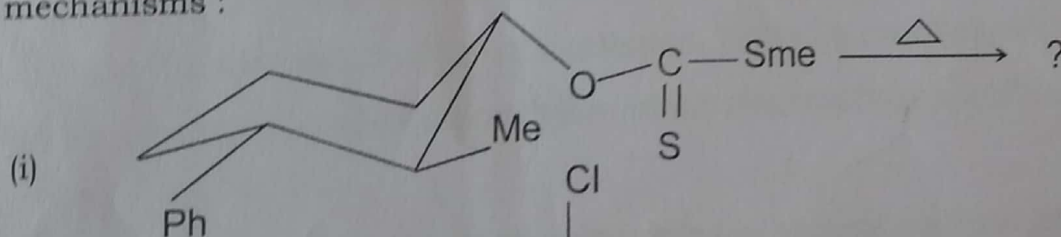


4. (a) Predict the products in the following reactions and outline their mechanisms :



(b) Give an account of Mannich reaction. (6 + 4 = 10)

5. (a) Predict the products in the following reactions and outline their mechanisms :



(b) Describe the mechanism and application of Beckmann rearrangement. (6 + 4)

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6. (a) Propose a suitable mechanism for the following transformations
- (i) Benzil into Benzilic acid
 - (ii) Dienone into phenol
- (b) Describe Sanger and Edmann methods of amino acid sequencing in peptides. (6 + 4)
7. (a) Outline any two methods of synthesis of amino acids.
- (b) Outline the steps involved in the solid phase synthesis of a tripeptide.
- (c) Explain the use of DCC in peptide bond formation. (4 + 3 + 3)
8. Write notes on :
- (a) Racemization in peptide synthesis
 - (b) Baeyer-Villiger oxidation
 - (c) Bucherer reaction (3 + 4 + 3)
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