PG – 178

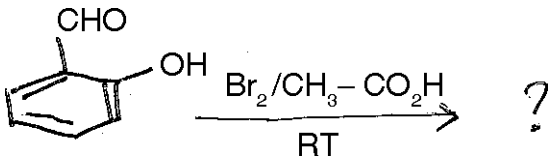
II Semester M.Sc. Examination, July 2017
(CBCS)
CHEMISTRY
C 202 : Organic Chemistry – II

Time : 3 Hours Max. Marks : 70

Instruction : *Answer question no.* ***1*** *and* ***any five*** *of the* ***remaining*** *questions.*

1. Answer **any ten** sub-divisions : **(10×2=20)**

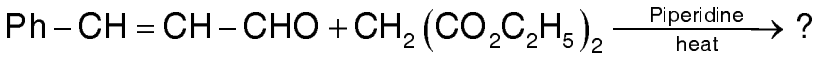
a) Predict the product/s in the following reaction and propose a mechanism.



b) How do you bring about the following transformation ? Name the reaction.

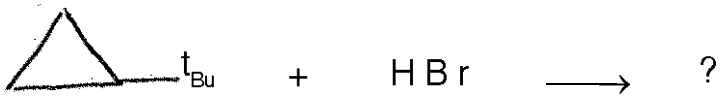
c) 2, 4 - Dinitrochlorobenzene gives 2, 4 - dinitrophenol with aqueous NaOH but chlorobenzene does not yield phenol. Justify.

d) Draw the structure of the product in the following reaction and outline its mechanism.

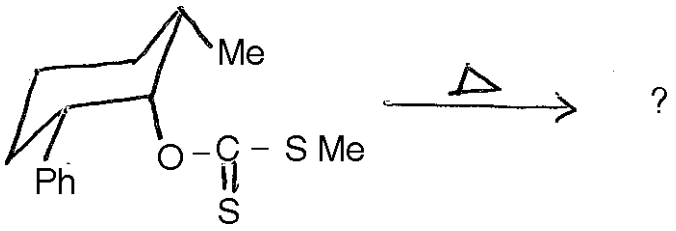


e) What is ene reaction ? Illustrate the mechanism with an example.

f) Give the product and suggest a suitable mechanism.



g) Write the structures of the products in the following reaction and propose mechanisms for their formation.



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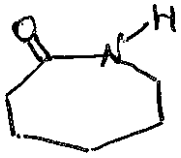
h) Illustrate how the following compound is prepared by Beckmann rearrangement.

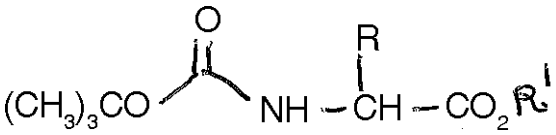


i) Give evidence to show that Farorskii rearrangement involves cyclopropanone intermediate.

j) How is CNBr useful in the fragmentation of polypeptides ?

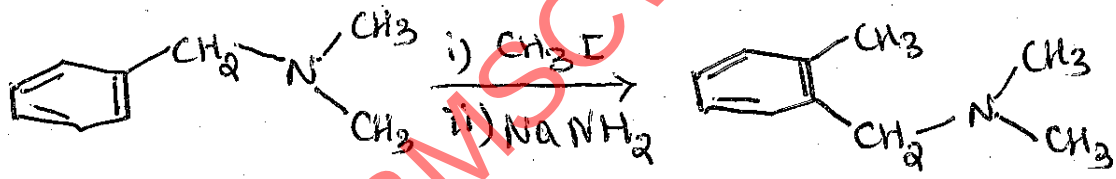
k) What are peptidomimetics ? Explain with suitable examples.

l) How is the following deprotected ? Give the mechanism.

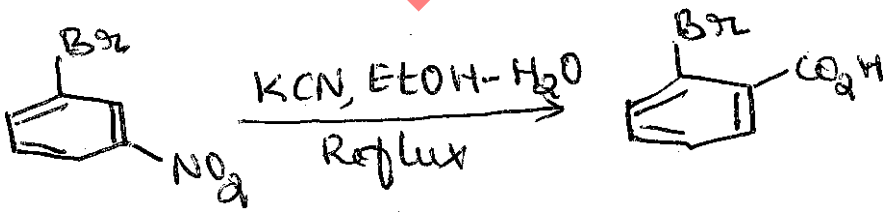


2. a) Explain the arenium ion mechanism in aromatic electrophilic substitution.

b) Name the rearrangement and propose suitable mechanism.

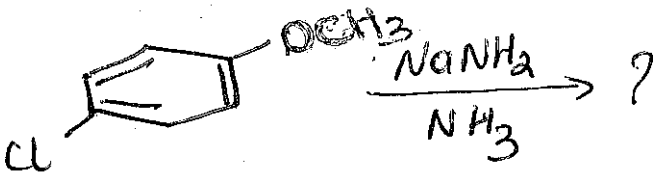


c) Explain the mechanism involved in the following conversion.



(3+3+4=10)

3. a) Write the product/s for the following reaction with a mechanism :



b) Explain the mechanism of Vilsmeier-Haack reaction with an example.

c) Formulate the products of nitration in the following compounds with mechanisms and proper justification.

i) Ethyl benzoate ii) Acetanilide. **(3+3+4=10)**

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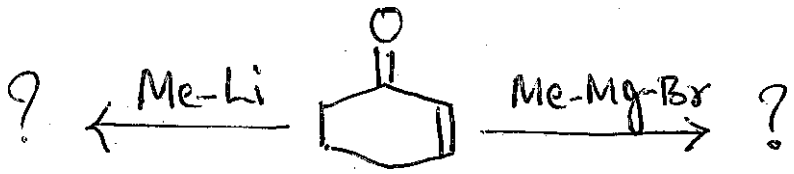
4. a) Explain the addition of HBr to an unsymmetrical alkene in the presence and in the absence of a peroxide catalyst.

   b) Write the structures of all products that could possibly formed when propene is treated with bromine water containing little NaCl. Sketch a suitable mechanistic scheme that explains the formation of these products.

   c) Give an account of catalytic hydrogenation of a triple bonds. **(4+3+3=10)**

5. a) Predict the product/s in the following reactions and suggest suitable mechanisms.

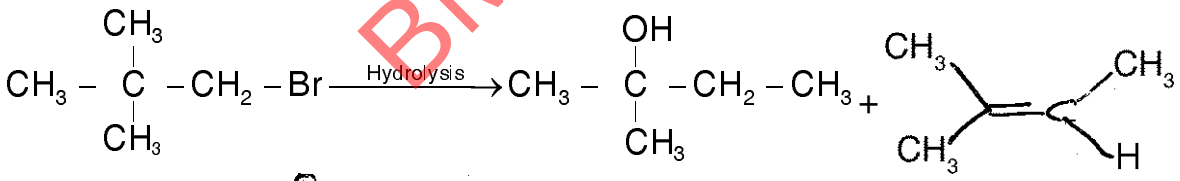


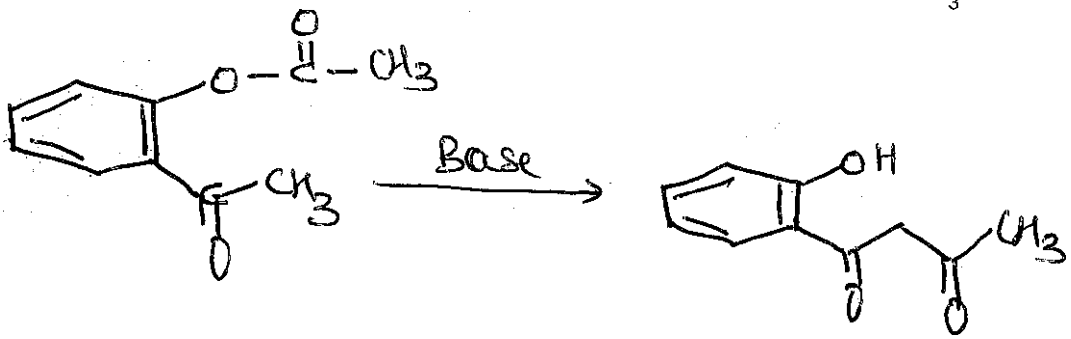
   b) Give the synthesis of phe by the azalactone method.

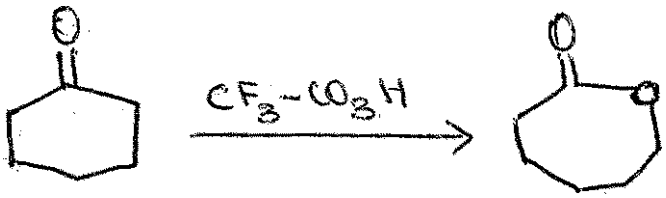
   c) How do you achieve the following conversion using Wittig reaction.

(3+4+3=10)

6. Suggest possible mechanisms and name the following reactions :

a) 

b) 

c) 

(4+3+3=10)

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7. a) Outline the mechanism of E1 and E1 cb reactions. Explain the effects of substrate structure and solvent medium on E/SN ratio.

   b) Describe the mechanism of benzidine rearrangement.

   c) Taking a suitable example, explain the peptide bond formation using DCC. **(4+3+3=10)**

8. a) Outline the solution phase synthesis of Leu-Val-Gly.

   b) Describe Edmon method of sequencing amino acids in peptides.

   c) Sketch the solid phase synthesis of oxytocin. **(3+3+4=10)**

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