

M. SC. (Analytical Chemistry) / M. SC. (Organic Chemistry) / M. SC.
(Inorganic Chemistry) Sem-I (Choice Based Credit & Grade System) :
WINTER - 2018

SUBJECT : ORGANIC CHEMISTRY – I

Day : Saturday
Date : 13/10/2018

W-2018-0982

Time : 03.00 PM TO 06.00 PM
Max. Marks : 60

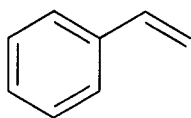
N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer books.

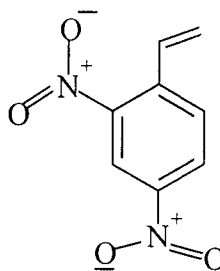
SECTION – I

Q.1 Explain ANY THREE of the following: [15]

- a) Reaction of 1-chloro-2-methyl propane with benzene in presence of AlCl_3 gives tert. butylbenzene.
- b) Compound (A) on reaction with HBr only gives Markownikoff's addition product; whereas (B) gives anti-Markonikoff's addition product.

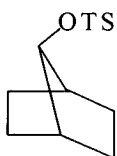


A

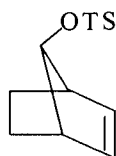


B

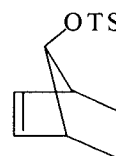
- c) Br^- is displaced by SN_2 mechanism more rapidly from CH_2BrCl than from CH_2Br_2 .
- d) Anisole on reduction with N_2O_5 gives mainly o-nitroproduct while with $\text{H}_2\text{SO}_4/\text{HNO}_3$ mixture it gives p-nitro product as a major product.
- e) Rates of acetolysis in the following compound.



1



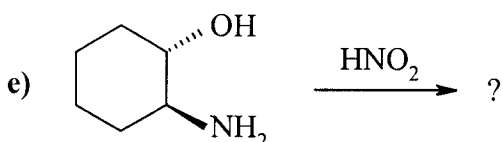
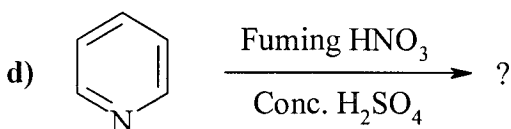
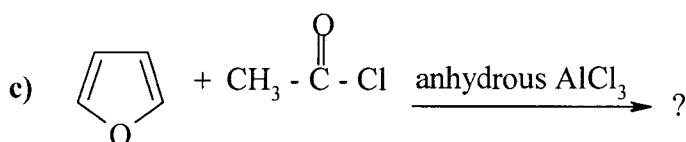
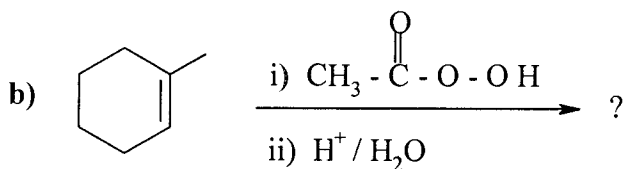
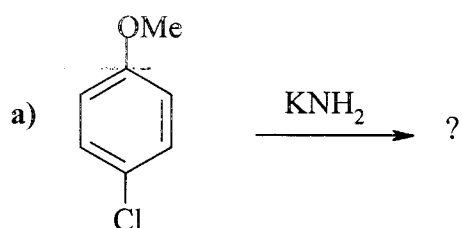
10^4



10^{11}

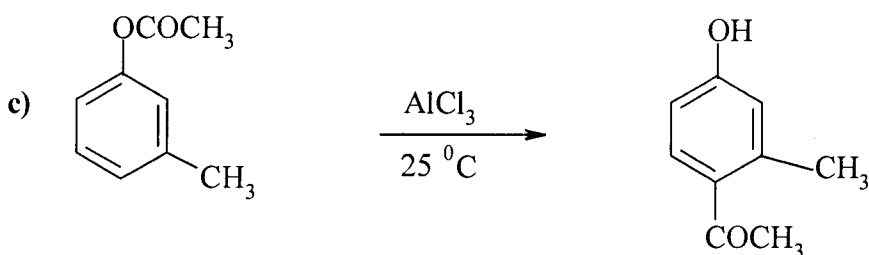
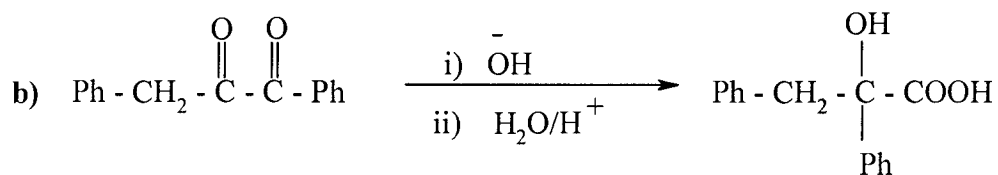
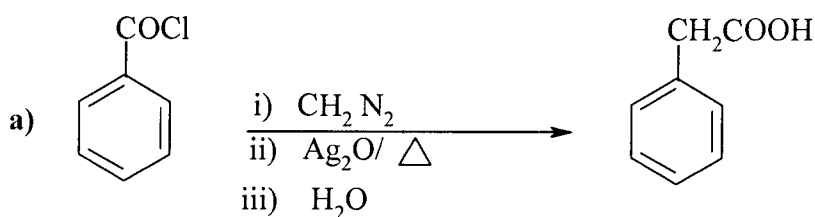
P.T.O.

Q.2 Predict the product/s in ANY THREE of the following reactions with [15] mechanism. Justify your answer:

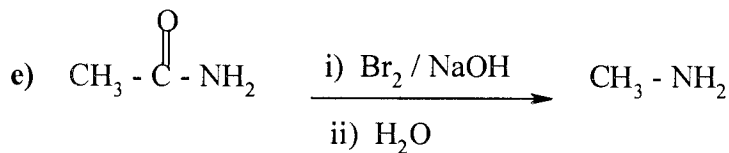
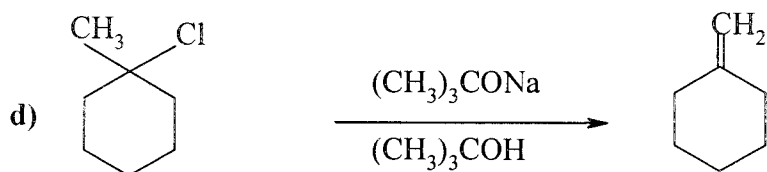


SECTION - II

Q.3 Suggest the mechanism for ANY THREE of the following. Justify your [15] answer:



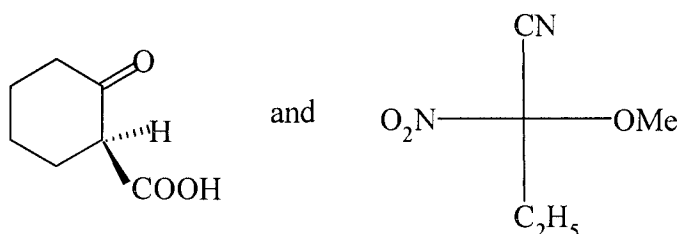
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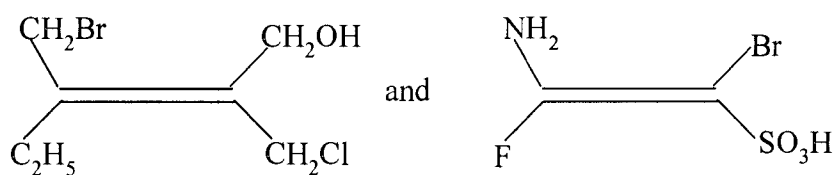
Q.4 Attempt ANY THREE of the following:

[15]

- Draw the chair conformations of *cis* and *trans* 1, 2-dimethyl cyclohexane and comment on their stability and optical activity.
- Discuss the structure, properties and aromaticity of fullerene (C_{60}).
- What are annulenes and heteroannulenes? Discuss with suitable examples.
- i) Assign R/S configuration to the following compounds. Indicate the sequence of groups clearly.



- Assign E/Z configuration to the following compounds. Justify your answer.



- Write a note on : Pyrolytic elimination.

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