



II Semester M.Sc. Degree Examination, July 2017
CHEMISTRY

C202 : Organic Chemistry – II
(NS-2010 – 11 Scheme) (Repeaters)

Time : 3 Hours

Max. Marks : 80

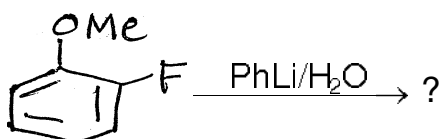
Instructions : Answer question No. 1 and any five of the remaining questions.

1. Answer **any ten** of the following :

(10×2=20)

a) What is ipso reaction ? Give an example.

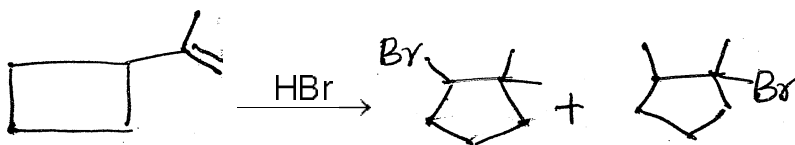
b) Complete the following reaction and outline its mechanism :



c) Predict the product with mechanism in the following reaction :



d) Propose a mechanism for the following reaction :



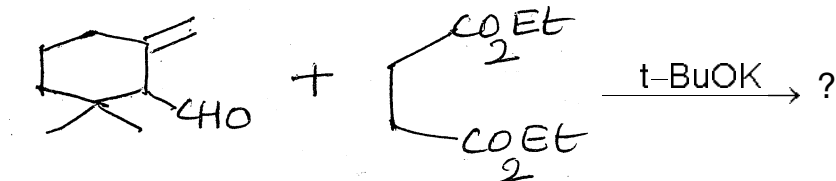
e) What are the conditions that favour E1CB mechanism in an elimination reaction ? Illustrate with example.

f) Give any one biological function of Vitamin B₁.

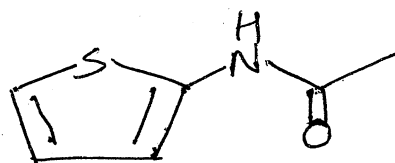
g) Explain Neber rearrangement with an example.



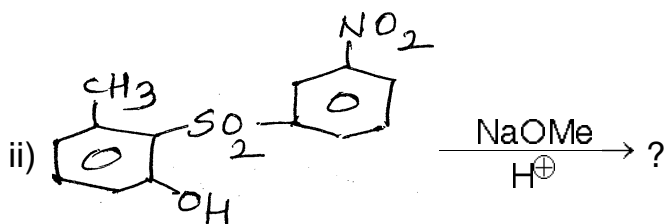
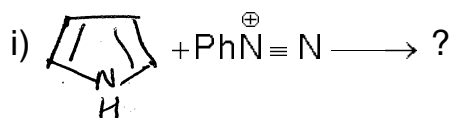
h) Complete the following reaction :



- i) Cis-2, 3-Diphenyl-2-butene on hydrogenation gives meso-compound where as trans-derivative gives racemic mixture. Explain.
- j) Cyclopropane is an intermediate in Favorskii rearrangement. Justify with adequate evidence.
- k) Outline the steps involved in the synthesis of following compound using Beckman rearrangement.



- l) What are cyclodextrins ? Draw the structure of α -cyclodextrin.
2. a) Discuss the effect of electron donating and electron withdrawing substituents governing the orientation in aromatic electrophilic substitution reactions.
- b) Outline the mechanism of Vilsmeier-Haack reaction.
- c) Give the product formed with mechanism of the following :



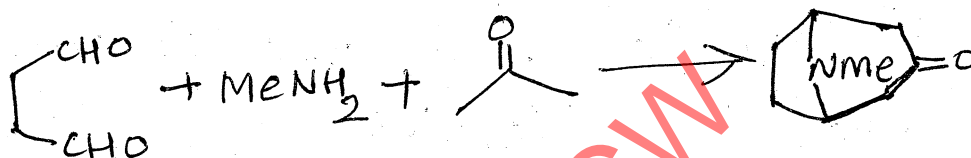
(5+3+4=12)



3. a) Arrange the following olefins in the increasing order of reactivity towards Br_2 in AcOH at 25°C . Justify your answer PhCH=CHPh , PhCH=CH_2 , $\text{CH}_2=\text{CHCH}_2\text{Cl}$, $\text{CH}_2=\text{CHCH}_2\text{Br}$.
- b) Give the mechanism and justify the stereochemical outcome in the following :

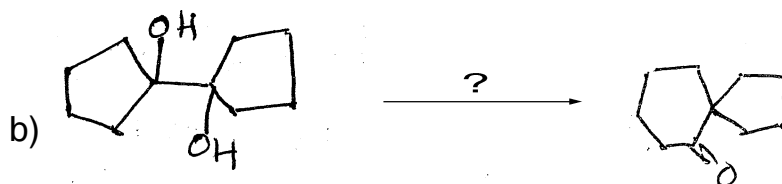
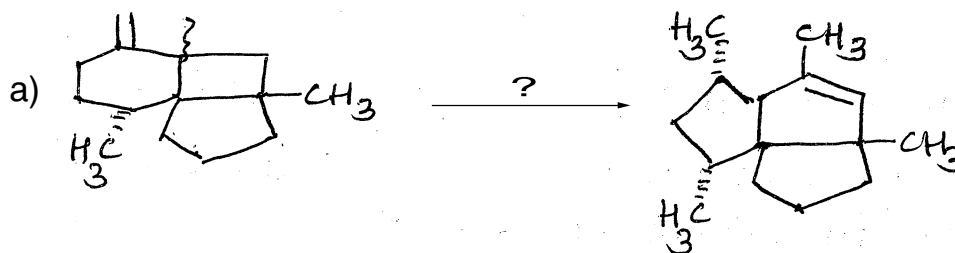


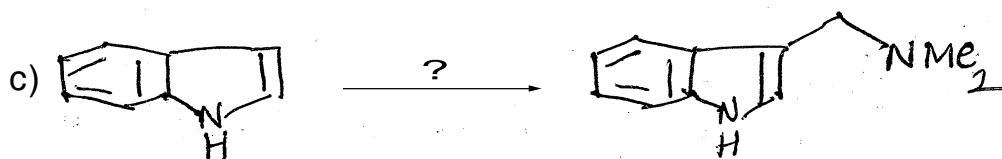
- c) Account for the product obtained in the following :



(4+4+4=12)

4. a) What is the effect of substrate, attacking base and leaving group on the reactivity of E1 and E2 mechanisms ?
- b) How do you convert Vitamin A_1 in to A_2 ?
- c) Describe the steps involved in the synthesis of Vitamin-C. (6+3+3=12)
5. How do you effect the following conversions ? Propose mechanisms.





6. a) Sketch the mechanisms of S_NAr and $S_{RN}1$ reactions.
b) Write an account on the function of molecular clefts.
c) Discuss the mechanism and synthetic utility of Wittig reaction. (4+4+4=12)
7. a) Write a brief account on the following :
i) Baeyer – Villiger oxidation
ii) Benzidine rearrangement.
b) Outline the synthesis of folic acid.
c) Give an account on the synthetic utility of $NaBH_4$ in organic synthesis. (6+3+3=12)

BMSGCW
