UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)
उत्तराखंड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

M.Sc.Second Year Chemistry

Last Date of Submission: **15 May, 2014**

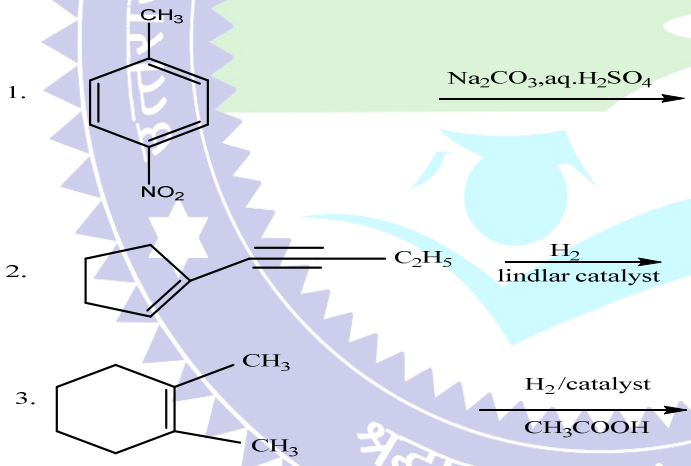
Course Title: Synthetic Organic Chemistry
Course Code: CHE552
Year: 2013-14 **Maximum Marks: 40 Marks**

Section 'A'

Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

Briefly discuss the following:

1. Complete the following reaction:



2. What is catalytic hydrogenation? Discuss briefly:
   (a) Heterogeneous hydrogenation
   (b) Homolytic hydrogenation
3. Give the mechanism of the following name reactions:
   (a) Meerwein-Pondroff- Verley reduction
   (b) Clemmensen reduction
4. Write a short note on:

i. Stork enamine synthesis

ii. Michael addition

5. Discuss the mechanism of the following reaction:

i. Cope elimination

ii. Shapiro reaction

iii. Witting reaction

6. Write any four important organosilicon reagents. Given the synthesis of triethylsilylazide.

7. Give synthetic applications of the following reagents in oxidation reaction:

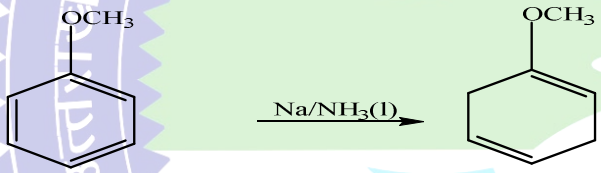
i. Thallium (III) nitrates ii. DMSO iii. $KMnO_4$

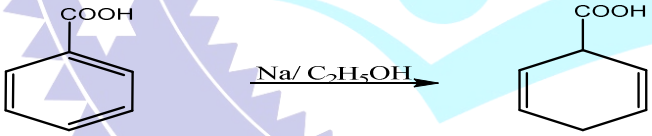
8. Define hydrogenation and hydrogenolysis. What is the difference between reductive cleavage and hydrogenolysis?

Section 'B'

Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answers 02 questions only.

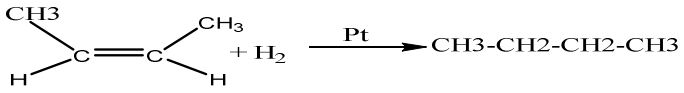
1. Write the mechanism of the following reaction:

1. 

2. 

3. 

4. 

5. 

2. (a) Write the structures of DDQ and Chloranil. Discuss dehydrogenation reaction with these reagents by taking an example.
   (b) What is Simmons-Smith reaction? Give two examples.

3. Discuss the protecting group? Discuss briefly the role of protecting groups in organic Synthesis.
4. Write brief about:
   (a)Suzuky coupling reaction.
   (b)Birch Reduction
   (c)Sharpless epoxidation
   (d)Diels- Alder reaction
   (e)Hydroboration reaction