Organic chemistry -

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unit I A) Study of following rearrangements

4m Questions

1) Neber rearrangement Mechanism (2016, 2015, 2014)
~~2) Geometrical isomerism (Short Note) (2016, 2014, 2013)~~
2) ~~3)~~ Curtius rearrangement (Short Note) (2016)
3) ~~4)~~ Explain the Mechanism and application of orton rearrangment (2014)

Organic chemistry.

Unit. II

A. Hydroboration.

* one marks question

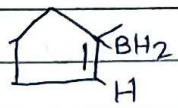
① write a reaction illustrating role of borane as reducing agent (2014)

② Explain whether hydroboration involves i) Markownikoffs rule or ii) Anti-markownikoffs rule stating a reason (2015)

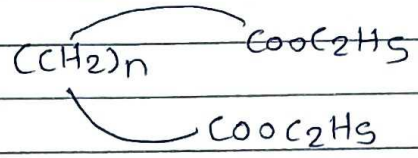
③  $\xrightarrow[H_2O_2]{B_2H_6}$?.

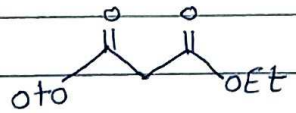
④ write a reaction illustrating regioselectivity in hydroboration reaction (2016)

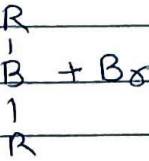
⑤ Give an example of regiosectivity in hydroboration. (2013)

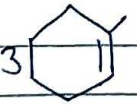
⑥  $+ BH_3 \xrightarrow{H_2O_2/OH^\ominus}$ .... ? (2013)

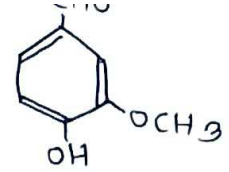
⑦  $\xrightarrow[THF]{i)\ B_2H_6/NaBH_4}$? (2014)

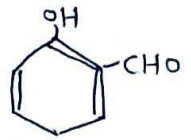
⑧  $\xrightarrow{C_2H_5O^-Na^+}$ (2016)

⑨  $\xrightarrow{C_2H_5^-Na^+ \text{ excess}}$  (2016)

⑩  $+ Br.CH_2COOC_2H_5 \xrightarrow{C_2H_5O^\ominus H^\oplus}$? (2015)

⑪  $+ BH_3 \longrightarrow$ .... ? $\xrightarrow{CrO_3}$ (2013)

12)  $\xrightarrow[MeOH, 25^\circ C]{NaBH_4}$?. (2013)

13)  $\xrightarrow{H_2O_2}$?. (2013)

14)  $\xrightarrow{H_2O_2}$?. (2013)

15) $CH_2(COOC_2H_5)_2$ $\xrightarrow[CH_2CH_2CH_2 \cdot Br]{C_2H_5O^{\ominus}Na^{\oplus}}$?. (2013

* long answer questions.

1) what is hydroboration ?. How will you synthesize following by using hydroboration i) primary alcohol ii) Ester iii) ketone iv) Alkyl halide

[2015, 2016, 2014] [10 marks]

2) what do you mean by hydroboration. give its mechanism and application in synthesis. (2013) (6 marks)

3) Give the mechanism ?. application of hydroboration reaction in synthesis (2013) - (6 marks)

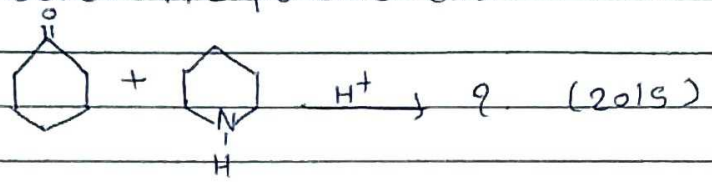
4) Define the term hydroboration. explain the stereochemistry involved in hydroboration [6 marks) [2015]

B. Enamins

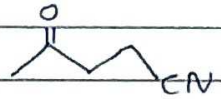
* one marks questions.

① How will you synthesize 2-acetylcyclohexanone from suitable enamine (2014, 2018)

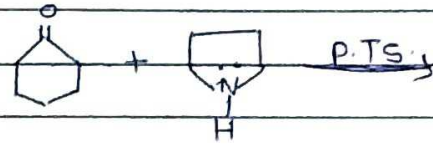
② Predict the product (s)



(2015)

③ 

(2015)

④ 

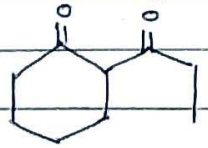
(2013)

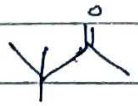
* long-answer questions.

① what are enamines? Give the methods of their formation & applications (2013.) 5 marks

② Explain the synthetic utility of enamines? (2016) 6 marks

③ How will you synthesize following molecules from enamine as a stating material. (2015) - 10 marks

i) 

ii) 

④ Explain alkylation of enamines (2014) - 6 marks

C) Oxidation.

1-marks question

1) write structure of chloranil (2015)

2. short answer questions.

① Woodward-prevost hydroxylation (2013, 2013 oct,) 4 marks.

② Chloranil (2013, 2013 oct.) 4-marks.

③ Explain the application of the following agents in organic synthesis. [5 marks)

i) chloranil.

④ Applications of DDQ - (2016)

Organic chemistry

Unit-3 Reduction & Protection & Functional group

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Short Beats : (one Mark each).

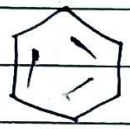
1) What product will you obtain by reduction of anisole using Birch reduction ? (oct-2015).

2) Enlist any two ways for protection of carbonyl group. (April-2016).

3) What is wilkinson's catalyst ? (oct-2013).

4) Give two important characteristics of protecting group. (March-2013).

5) Predict the products in the following (March-2013).



Na liq. NH_3 , ... ?

6) How will you protect hydroxy group ? (oct-2013).

Long Answer Questions : [10 marks]

1) Discribe different ways for protection of hydroxyl functional group. (Nov-2014).

2) What do you mean by homogeneous and heterogeneous hydrogenation ? Write the applications of wilkinson's catalyst with suitable mechanism in the hydrogenation reaction. (Nov-2014), (April-2016).

3) Write different ways for protection of amino functionality. (oct-2015).

4) Discribe different ways for protection of amino group. (April-2016).

5) What do you mean by homogeneous & heterogeneous hydrogenation? Give the ~~mechanism~~ applications of the reactions involving heterogeneous catalysts H_2/pt and H_2/Ni (oct-2013) [8 marks]

6) Give an account of the reacts involving protection of amino and carboxylic ~~acid~~ groups. (oct-2013). [8]

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3) What do you mean by homogeneous & heterogeneous hydrogenation ? Give the mechanism of the reaction involving homogeneous hydrogenation. (March-2013) [8mark]

4) What do you mean by protection of the groups ? Give an account of the reactions involving the protection of hydroxyl and carbonyl groups. (March-2013) [8]

Short Answer Questions :

1) Explain the applications of the following reagents in organic synthesis. (oct-2015). [4 marks].

2) Effect of substituents on Birch reduction. (April-2016) [4]

3) Write a notes on : (oct - 2013)
   i) Birch Reduction. (oct-2013) (March-2013) [4]
   ii) Fe in Hcl reduction. (oct-2013). [4]

4) Explain the applications of the following agents in organic synthesis. (Nov-2014). [5 mark].
   i) Na in ethanol. (Nov-2016).

5) Explain the applications of the following reagents in organic synthesis. (oct - 2015) [4]
   i) Na in alcohol.

6) Explain applications of the following agents in organic synthesis. (April-2016) [5]
   i) Fe in Hcl.

7) Write applications of Fe in Hcl. (oct-2015) [6 mark]

organic - UNIT-III

Reductions

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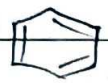
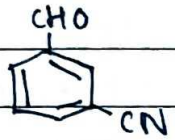
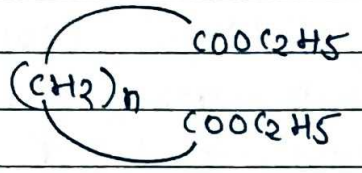
1)  $\xrightarrow{Li\ liq\ NH_3}$?

2)  $\xrightarrow{LiAlH_4}$?

3)  $\xrightarrow{C_2H_5O^-Na^+}$?

4) what product will you obtain by reduction of anisole using Birch reduction?

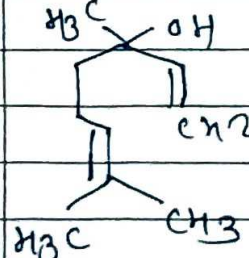
5)  $\xrightarrow[liq.NH_3]{Na}$?

6)  $\xrightarrow{LiAlH_4}$?

7) $R-\underset{\underset{R'}{|}}{\overset{\overset{R}{|}}{B}} + Br-CH_2COOC_2H_5 \xrightarrow{C_2H_5O^+Na^{\oplus}}$?

8) $CH_2(COOC_2H_5)_2 \xrightarrow[CH_3CH_2CH_2-Br]{C_2H_5O^-Na^+}$?

9)  $\xrightarrow{Na\ liq\ NH_3}$

10)  $\xrightarrow[C_6H_6]{H_2(C_6H_5)_3RhCl}$?

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4&6-mark
1) Effect of Substituents on Birch reduction ? (2016, 2015)
2) write the applications of Fe in HCl. (2015)
3) write note on Fe in HCl reduction (2013)
4) write note on Birch reduction (2013, 2012)
5) Hydrogenation of aromatic rings (2013, 2014)
6) Short note on catalytic hydrogenation (2013)
7) Discuss Hydrogenation of carbon-carbon double bond with homogeneous & hetrogeneous catalyst ?

8-10 marks
1) what do you mean by homogeneous & hetrogeneous hydrogenation ? write the applications of wilkinson's catalyst with suitable mechanism in the hydrogenation reaction. (2016, 2014, 2013, 2012)
2) explain the applications of the following reagents in organic Synthesis (2015, 2014)
i) CrO_3
ii) Na in ethanol - (2014) 6m
3) what do you mean by homogeneous & hetrogeneous hydrogenation ? (2013)
4) Give the mechanism of the homogeneous hydrogenation ?
5) Give the mechanism & the Synthetic utility of the following reagent in Synthesis
i) NH_2-NH_2 in alkali
ii) $LiAlH_4$

IV - organo metalic Compounds

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One mark

Organic

write in Situ formation of organo cerium compounds. C2015

what do you mean by zebra synthesis? C2013

what do you mean by Synthon? C2013

what do you mean by hydroboration

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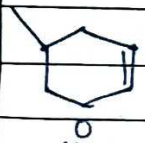
Section - I

6 mark

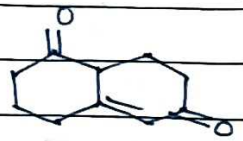
Explain synthetic applications of organotin compounds C2014

By using retrosynthetic analysis how will you design Synthesis of the following compounds ? C2015

i)



ii)



5 mark Give the mechanism & appli. of hydroboration reaction in Synthesis C2013,

6m- Give an account of the following reagents in organic synthesis

i) chromium trioxide

ii) Manganese dioxide. C2013

6m i) Osmium tetraoxide C2013

ii) Potassium permagnate

8m- Give the mechanism and the synthetic utility of the following reagents in synthesis

i) $NH_3 + NH_2^-$ in alkali

ii) $LiAlH_4^-$ C2013

IV) organometallic compounds

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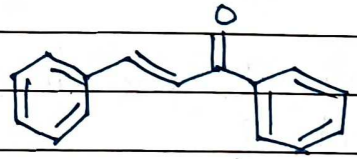
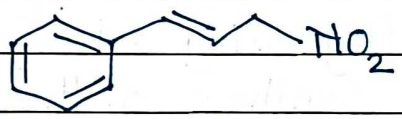
Section II

~~Organic~~

6 mark

By using retrosynthetic analysis how will you design synthesis of the following compounds ? C2014

i) 

ii) 

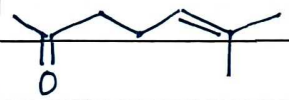
What do you mean by retrosynthetic analysis ? Describe various terms and symbols used in it. C2014

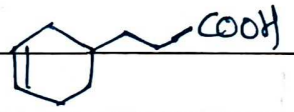
4 mark

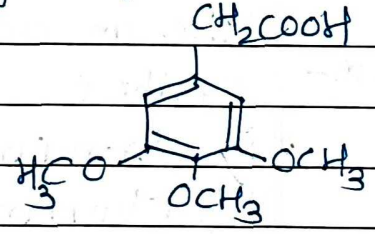
Applications of organomercury compounds C2015

8 marks

what do you mean by retrosynthesis ? Explain term & symbols used in it. using retro-synthesis how will you synthesize following compounds.

i) 

ii) 

iii) 

C2013

8 mark

what are the organometallic compounds & Give the synthetic utility of organocobalt and organo-Cadmium compounds C2013

8 mark

Give the applications of the following reagents in synthesis i) Lithium dialkyl cuprate ii) Cerium compounds C2013

4 mark

Applications of Ti compounds in synthesis C2013

Regioselectivity in retro-synthesis