Examination Roll No.....

YMCA UNIVERSITY OF SCIENCE & TECHNOLOGY, FARIDABAD

M.Sc. (Chemistry) 2nd SEMESTER (UNDER CBCS)

Organic Chemistry (General-II)(CH-202)

Time: 3 Hours | Max. Marks:60

Note: 1. *It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.*
2. *Answer any four questions from Part -2 in detail.*
3. *Different parts of the same question are to be attempted adjacent to each other.*
4. *Assume suitable standard data wherever required, if not given.*

PART -1

Q1 (a) Will naphthalene give baeyer's test for unsaturation? Explain your answer. (2)

(b) What do you understand by pi and sigma complex formation in aromatic electrophilic substitution reactions? (2)

(c) Halogens are deactivating but ortho/para directing groups. Justify the statement. (2)

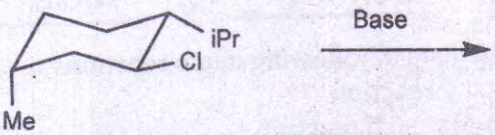
(d) Write down the product of following reaction; (2)

(e) What do you understand by transannular rearrangement reaction? (2)

(f) What is ipso substitution? (2)

(g) Briefly explain the term stereospecificity by giving suitable example. (2)

(h) Write down the product; (2)



(i) Briefly explain the mechanism of addition of bromine to alkenes. (2)

(j) Explain why NaH cannot be used for reduction of carbonyl compounds while it is stronger hydride ion donor than $NaBH_4$ or $LiAlH_4$. (2)

PART -2

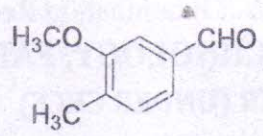
Q2 (a) Give the following name reactions with mechanism; (3,3,4)
(i) Vielsmier Haack reaction.
(ii) Wagner Meerwein rearrangement.
(iii) Bischler-Napieralski reaction.

Q3 (a) Reflect upon the structure activity relationship of monosubstituted benzene. (4)

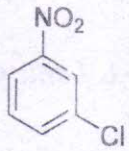
(b) Briefly explain S_Ei mechanism. (3)

(c) Explain cope elimination reaction. (3)

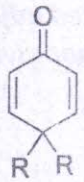
Q4 Draw the product of following reactions: (10)

(i) 

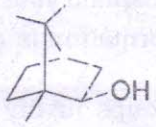
$\xrightarrow{HNO_3}$

(ii) 

$\xrightarrow{HNO_3+H_2SO_4}$

(iii) 

$\xrightarrow{H+}$

(iv) 

$\xrightarrow{H+}$

Q5 (a) Free radicals are stabilized by both electron donating as well as electron withdrawing groups. Explain the statement. (3)

(b) Complete the following reaction with mechanism; (6)

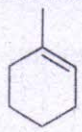
(i) $CH_3COCH_3 \xrightarrow{LiAlH_4} X \xrightarrow{SOCl_2} Y \xrightarrow{alc.\ KOH} Z$

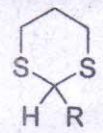
(ii) $CH_3CHO \xrightarrow{CH3MgI} X \xrightarrow{H_2O/H^+} Y \xrightarrow{K_2Cr_2O_7\text{-}H_2SO_4} Z$

Q6 Discuss the mechanism of following name reactions (10)

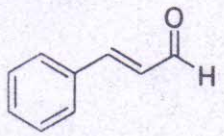
(i) Reformatsky reaction
(ii) Robinson-Mannich reaction
(iii) Knoevenagel reaction
(iv) Sandmeyer reaction

Q7 (a) Write down the product of following reactions. Also give plausible mechanism for each. (3,4,3)

(i)  $\xrightarrow[(ii)\ H_2O_2/NaOH]{(i)\ B_2H_6}$

(ii) 

$\xrightarrow[(ii)\ \text{  }]{(i)\ n\text{-}BuLi}$

(iii) 

$\xrightarrow{NaBH_4}$

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