

MASTER OF SCIENCE (CHEMISTRY) (CBCS - 2018 COURSE)
M.Sc. (Chemistry) Sem-I : WINTER- 2022
SUBJECT : ORGANIC CHEMISTRY - I

Day : Monday

Time : 02:00 PM-05:00 PM

Date : 9/1/2023

W-20141-2022

Max. Marks : 60

N.B.:

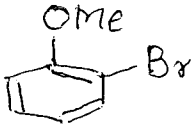
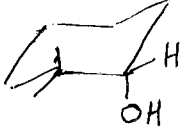
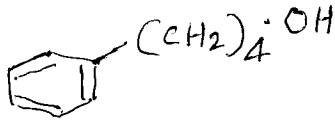
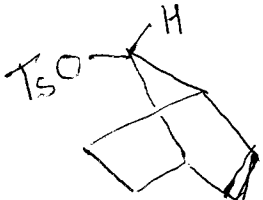
- 1) All question are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

Q.1 Explain **ANY THREE** of the following: (15)

- a) Nitration with N_2O_5 occurs more at *ortho* position of methyl phenyl ethyl ether.
- b) Formation of cumene from n-propyl chloride in presence of $AlCl_3$
- c) NGP occur only when there is sufficient demand for it.
- d) The trapping reagents for benzyne intermediate.
- e) Write a short note on: Diazonium coupling.

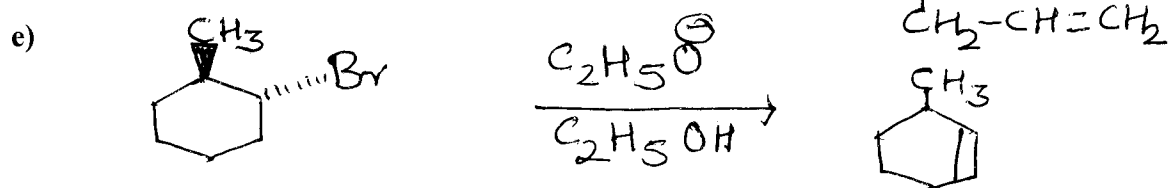
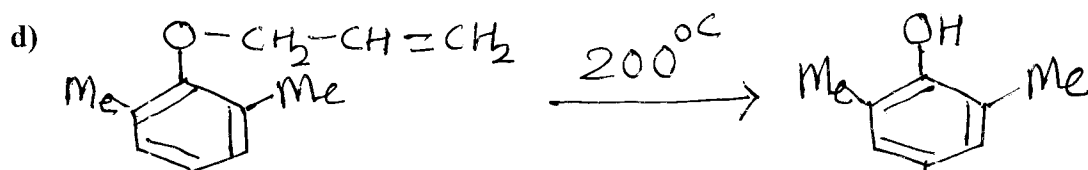
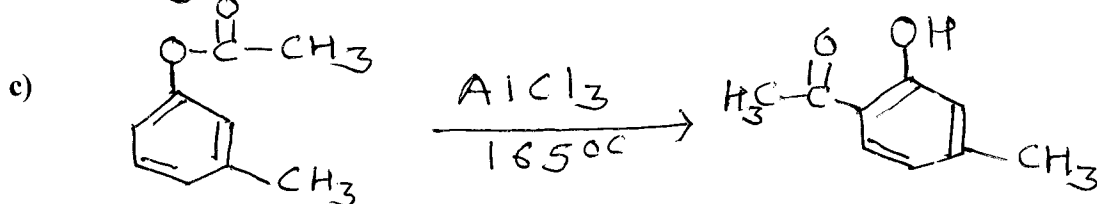
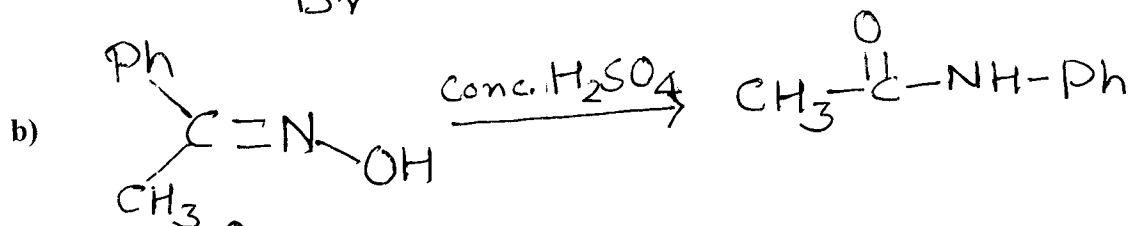
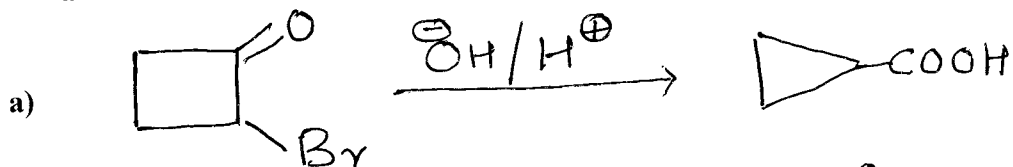
Q.2 Predict the product/s and suggest the mechanism for **ANY THREE** of the following: (15)

- a)  $\xrightarrow{NaNH_2 / NH_3}$?
- b)  $\xrightarrow{H^+ / \Delta}$?
- c) maleic Acid $\xrightarrow{Br_2}$?
- d)  $\xrightarrow{conc. H_2SO_4}$?
- e)  \xrightarrow{HCOOH} ?

P.T.O.

SECTION-II

Q.3 Suggest the mechanism for ANY THREE of the following. Justify your answer. (15)



Q.4 Attempt ANY THREE of the following: (15)

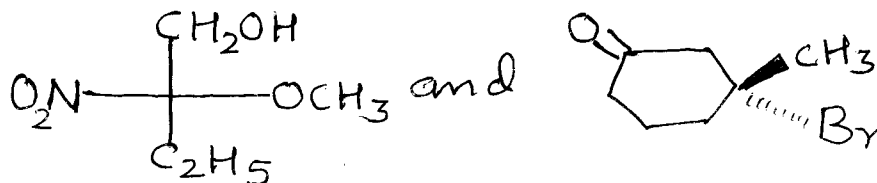
a) Draw chair conformations for *cis* and *trans* 1,3 dimethyl cyclohexane.

Comment on their stability and optical activity.

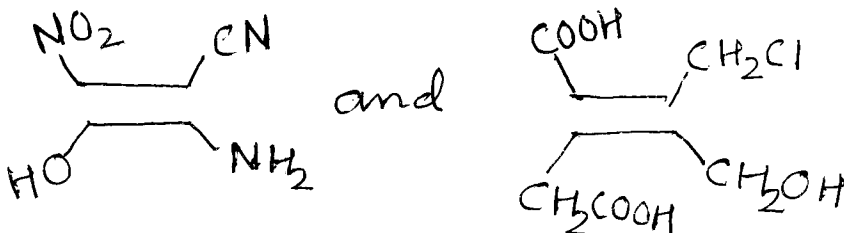
b) Discuss the mechanism and stereochemistry of E_1cB reaction.

c) What are annulenes? Explain the structure, properties and aromaticity of [18] annulene.

d) i) Assign R/S configuration to the following compounds. Indicate the sequence of groups clearly.



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



e) Write a note on: Pyrolytic elimination.