



THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

CHE 2421

ORGANIC & INORGANIC CHEMISTRY-I

75 Marks

Answer any FIVE questions

5 x 15=75

1. A) How will you convert

- | | | |
|------------------------|---|-------------|
| a) Ethanol | → | Ethylene |
| b) n-Butyl alcohol | → | 2-Butene |
| c) n-Butyl alcohol | → | Isobutylene |
| d) Propylidene bromide | → | 3-Hexene |
| e) Propyl iodide | → | Propylene |

[10]

B) In the dehydrohalogenation of 2-bromobutane, dimethylethylene formation predominates (80%). Give reason.

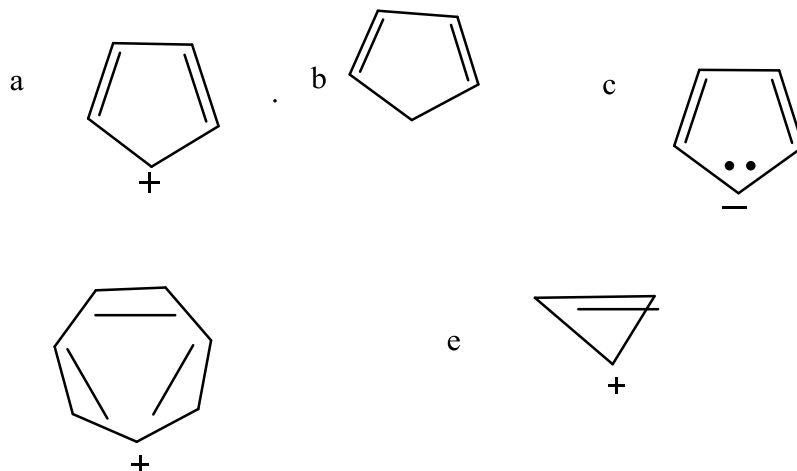
[5]

2. A) Explain the structure of benzene in term of Molecular orbital theory.

[5]

B) Predict whether the following species are aromatic or not with correct explanation

[10]



3. A) Write a note on aromaticity in Naphthalene

[5]

B) Complete the reactions of Naphthalene with

- | | | |
|--------------------------------------|--------------------------------|-----------------|
| a) KMnO_4/H^+ | b) $\text{KMnO}_4/\text{OH}^-$ | c) Chromic acid |
| d) $\text{O}_2/\text{V}_2\text{O}_5$ | e) O_3 | [10] |

4. Explain VB theory with suitable examples. Write its limitations.

5. Define Lattice energy. With neat sketch explain the Born-Haber cycle for the formation of NaCl molecule.
6. A) State the terms
a) Unit cell b) Bravais Lattices c) Miller indices
d) Accuracy e) Precision [10]
- B) Write a short notes on x-ray diffraction with the help of Bragg's equation [5]
7. A) Draw and explain the VSEPR model for the following molecules
a) H₂O b) NH₃ c) BF₃ [9]
- B) Discuss the types of errors [6]