

END SEMESTER EXAMINATION

May-2019

AC-102 CHEMISTRY

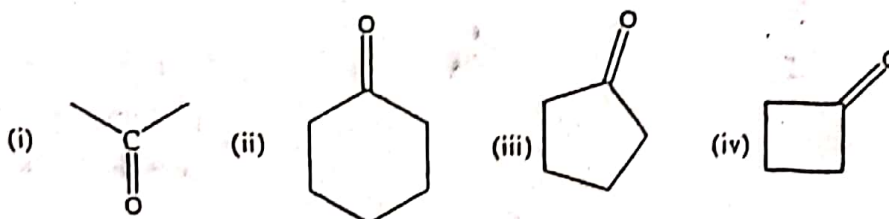
Time: 3 Hours

Max. Marks: 40

Note : Answer FIVE questions. Question number ONE is compulsory
Assume suitable missing data, if any.

I Answer the following questions (Any Six) [2x6=12]

- [a] Give one example each of internal, external, self and polymeric indicator.
[b] How DSC is used to check the purity of any compound?
[c] Arrange the following molecules in their increasing order of stretching frequency of C=O. Discuss the reason



- [d] Write four examples of secondary batteries?
[e] What is reduced phase rule? When is it applied?
[f] Calculate the % atom economy of synthesis of ammonia.
$$\text{N}_2 + 3\text{H}_2 \longrightarrow 2\text{NH}_3$$

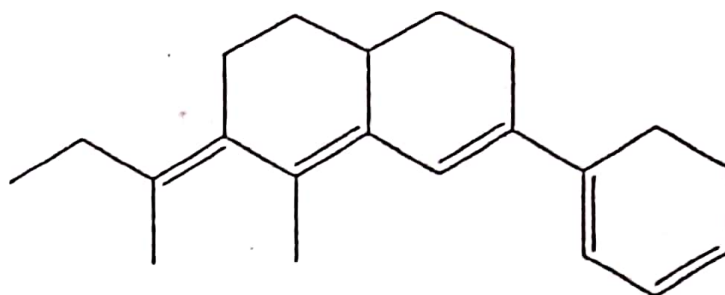
[g] What is an auxochrome? Explain with an example.

2 [a] Explain the principle of DTA with the help of a suitable thermogram. [3]

[b] Discuss the mode of termination in free-radical addition polymerization. Write monomers of Terylene and Kevlar. [4]

3 [a] Explain the mass spectrum of isopropane. Calculate λ_{max} for the following molecule using Woodward – Fieser rule

- 448 -

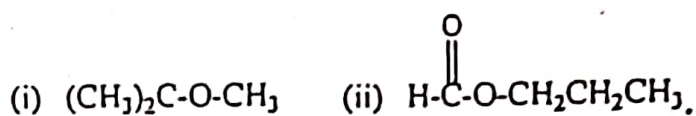


[3]

[b] What do you mean by enantiotropy? Draw and explain the phase diagram of sulphur. [4]

4 [a] In a polymer, there are 100 molecules of molecular weight 100; 200 molecules of molecular weight 1000; and 300 molecules of molecular weight 10,000. Find \bar{M}_n , M_w and PDI. [3]

[b] Predict the number of signals and multiplicity (splitting) of the respective signals in the following compounds:



[4]

5 [a] Explain Volhard's method for determination of halide ion. [3]

[b] Define electroplating. What is its significance? How the balanced concentration of metal ions is maintained in electrolytic cell? [4]

6 Write short notes on any TWO of the following.

[3.5x2=7]

- (a) Li-ion battery
- (b) Green solvents
- (c) Fuel cell
- (d) Eutectic system