



**ACE**  
Engineering College  
(with a Difference in Excellence)

An AUTONOMOUS Institution

Question Paper Code:

CH202BS

ACE-R20

**Semester End Examination**  
**I B. Tech- II Semester Supplementary - JUNE-2022**  
**Engineering Chemistry**  
**(Common to CE,MECH,ECE,CSM,CSO)**

Time: 3 Hours

Max. Marks: 70

H. T. No

*Answer any 5 Questions out of 8 Questions from the following*

Q.No	Question	Marks
1. a)	Draw the molecular orbital diagram of O <sub>2</sub> and find out the bond order and its magnetic behaviour.	7
b)	Explain the Crystal Field Splitting of transition metal ion d-orbitals in Octahedral complexes with an example.	7
2. a)	What is band structure of solids? Write the salient features of Band theory.	6
b)	Explain how solids are classified on the basis of band theory of solids.	8
3. a)	Give a detailed account on the disinfection of water by ozone gas treatment and chlorination with equations	8
b)	Explain the estimation of hardness of water by Complexometric method.	6
4.	What is external treatment? Explain the Ion-exchange process with the help of a neat diagram. Write the chemical equations.	14
5. a)	What is Cathodic protection? Explain the Sacrificial anodic protection method with an example.	7
b)	Explain the construction and working principle of Lithium ion battery with charging and discharging process (Give equations).	7
6. a)	Write the structure, synthesis and pharmaceutical applications of Paracetamol.	7
b)	What are composites? Write their classification and mention advantages and applications.	7
7. a)	What are Markownikoff and Anti Markownikoff's additions? Give example for each.	7
b)	Explain the Conformation analysis of n-butane.	7
8. a)	Write any five differences between Thermoplastics and thermosetting polymers.	6
b)	Write synthesis, properties and applications of Bakelite.	8