

**Model Question Paper**  
**Total Duration (H: M): 3:00**  
**Course: Engineering Chemistry**  
**Maximum Marks:100**

**Note: Attempt all questions. All questions carry equal marks.**

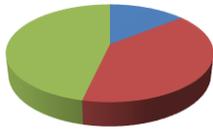
**Course Outcomes:**

1. To bridge the knowledge of chemical science with technical aspect of Engineering Chemistry.
2. To give technical knowledge of several industries, where Engineering chemistry is used as an integral part, like: Polymer chemistry, Paints, Lubricants, Fuel, Glass etc.
3. To give knowledge of chemical aspect of water and its treatment.
4. To give knowledge of different type of corrossions and pollutions and there minimization.
5. To give brief knowledge of different advance techniques of Instrumental Chemistry, like Principal of spectroscopy, NMR and MRI spectroscopy. Elementary idea about organic reactions and synthesis of Drugs.

Q.No.	Questions	Marks	CO	BL	
<b>1</b>	<b>Answer any four parts of the following.</b>	<b>UNIT-I</b>			
a.	State de-Broglie hypothesis.	5	CO1	BL1	
b.	Derive Schrodinger equation for hydrogen like atoms of spherical polar co-ordination.	5	CO1	BL3	
c.	On the basis of band theory, differentiate between insulator, conductor and semiconductor.	5	CO1	BL3	
d.	How crystal field theory applied in tetrahedral complexes?	5	CO1	BL2	
e.	What is meant by bond order? Calculate the bond order of $\text{He}_2^+$ , $\text{O}_2^-$ and $\text{O}_2^+$ molecules.	5	CO1	BL2	
<b>2</b>	<b>Answer any four parts of the following.</b>	<b>UNIT-II</b>			
a.	What is an electrochemical series? Discuss its three important applications.	5	CO1	BL1	
b.	Define and explain entropy. Write note on entropy change in reversible and irreversible processes.	5	CO1	BL2	
c.	Derive Nernst's equation for simple electrode potential and explain the terms involved in it.	5	CO1	BL3	
d.	What is the Hess Law.	5	CO1	BL2	
e.	What do you understand by theories of Acid and Bases.	5	CO1	BL2	



## Bloom's Levelwise Marks Distribution



■ BL1  
■ BL2  
■ BL3

## CO's Marks Distribution

