

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM**  
**(AUTONOMOUS)**  
**I B.Tech I Semester Supplementary Examinations, July – 2024**

**APPLIED CHEMISTRY**  
**(EEE)**

Time: 3 hours

Max. Marks: 70

Answer ONE Question from each Unit  
 All Questions Carry Equal Marks

| Q. No.            | Questions   | BTL | CO  | Marks |
|-------------------|---|-----|-----|-------|
| <b>UNIT – I</b>   |   |     |     |       |
| 1.                | a) What are Batteries and their characteristics? How they can be classified? Differentiate between Primary and secondary batteries. | K1  | CO1 | 7M    |
|                   | b) Describe the construction and working of Calomel electrode?  | K2  | CO1 | 7M    |
| <b>OR</b>         |   |     |     |       |
| 2.                | a) What is electrode Chemical series? Discuss its significance?   | K1  | CO1 | 7M    |
|                   | b) Explain about H <sub>2</sub> -O <sub>2</sub> fuel cells with suitable chemical reactions?  | K2  | CO1 | 7M    |
| <b>UNIT – II</b>  |   |     |     |       |
| 3.                | a) What are Extrinsic semiconductors? Write a brief note on mechanism of conduction in p-type and n-type semiconductors?            | K1  | CO2 | 7M    |
|                   | b) Explain the preparation and purification of semiconductors by zone refining method?  | K2  | CO2 | 7M    |
| <b>OR</b>         |   |     |     |       |
| 4.                | a) Discuss how magnetic materials have been classified with suitable examples?  | K1  | CO2 | 7M    |
|                   | b) Explain Hall effect and its applications?  | K2  | CO2 | 7M    |
| <b>UNIT – III</b> |   |     |     |       |
| 5.                | a) Write a detailed note on Preparation, Properties and Applications of Fullerenes  | K1  | CO3 | 7M    |
|                   | b) Describe the steps involved in growth of Nanomaterials by Sol-Gel Process?   | K2  | CO3 | 7M    |
| <b>OR</b>         |   |     |     |       |
| 6.                | a) Briefly describe the principles of Green Chemistry?  | K1  | CO3 | 7M    |
|                   | b) What are nano materials? Describe how to characterize nanomaterials by BET?  | K2  | CO3 | 7M    |
| <b>UNIT – IV</b>  |   |     |     |       |
| 7.                | a) What is polymerization? Write a brief note on Suspension polymerization?   | K1  | CO4 | 7M    |
|                   | b) What are conducting polymers and explain how polyacetylene act as conducting polymer?  | K1  | CO4 | 7M    |
| <b>OR</b>         |   |     |     |       |
| 8.                | a) What are plastics? Differentiate thermoplastics from thermosetting plastics  | K1  | CO4 | 7M    |
|                   | b) Write a note on Preparation, Properties and Applications of Buna-S?  | K1  | CO4 | 7M    |

| UNIT – V |    |  |    |     |    |
|----------|----|--|----|-----|----|
| 9.       | a) | Define the electromagnetic spectrum and explain the various types of transitions in electronic spectroscopy? | K1 | CO5 | 7M |
|          | b) | Derive an expression for absorbance of light by Beer Lambert's Law?  | K2 | CO5 | 7M |
| OR       |    |  |    |     |    |
| 10.      | a) | Explain briefly about harnessing of Solar energy by using PV Cells?  | K2 | CO5 | 7M |
|          | b) | Discuss in brief about Geo Thermal Power Plant.  | K1 | CO5 | 7M |