

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. I Year I Semester Regular & Supplementary Examinations December/January-2024/2025
ENGINEERING CHEMISTRY
(Common to CE & MECH)

Time: 3 Hours

Max. Marks: 70

PART-A

(Answer all the Questions 10×2=20 Marks)

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|---|---|--|-----|----|----|
| 1 | a | What is caustic embrittlement? | CO1 | L1 | 2M |
| | b | What is reverse osmosis? | CO1 | L1 | 2M |
| | c | Define Pilling Bed worth ratio. | CO2 | L1 | 2M |
| | d | Distinguish between primary cell and secondary cell. | CO2 | L2 | 2M |
| | e | What is polymerization? | CO3 | L1 | 2M |
| | f | Define octane number | CO4 | L1 | 2M |
| | g | What are composites? | CO5 | L1 | 2M |
| | h | Define flash point and fire point. | CO5 | L1 | 2M |
| | i | What are colloids? | CO6 | L1 | 2M |
| | j | Define Freundlich adsorption isotherms. | CO6 | L1 | 2M |

PART-B

(Answer all Five Units 5×10=50 Marks)

UNIT-I

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|---|---|---|-----|----|-----|
| 2 | | Describe the estimation of hardness by EDTA method. | CO1 | L2 | 10M |
| | | OR | | | |
| 3 | a | Describe the Ion-exchange process for demineralization of water. | CO1 | L2 | 5M |
| | b | Explain about desalination of brackish water by Electro-dialysis. | CO1 | L2 | 5M |

UNIT-II

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|---|---|---|-----|----|----|
| 4 | a | Explain the construction and working principle of Electrochemical cell with neat diagram. | CO2 | L2 | 5M |
| | b | Explain the Construction and working of Nickel-Cadmium battery. | CO2 | L2 | 5M |
| | | OR | | | |
| 5 | a | Describe the importance of the Impressed Current Cathodic protection. | CO2 | L2 | 5M |
| | b | Explain the Construction and Working of Hydrogen-Oxygen Fuel cell. | CO2 | L2 | 5M |

UNIT-III

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|---|---|--|-----|----|----|
| 6 | a | Describe the synthesis and properties of Polystyrene. | CO3 | L2 | 5M |
| | b | Distinguish between Thermoplastics and Thermosetting plastics. | CO3 | L2 | 5M |
| | | OR | | | |
| 7 | a | Discuss the ultimate analysis of coal with its significance. | CO4 | L2 | 6M |
| | b | What is the significance of propane and methanol fuels? | CO4 | L1 | 4M |

UNIT-IV

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|---|---|---|-----|----|----|
| 8 | a | Discuss the functions and properties of lubricating oils. | CO5 | L2 | 6M |
| | b | Determine the viscosity of lubricating oil by Redwood Viscometer. | CO5 | L2 | 4M |
| | | OR | | | |
| 9 | a | Explain about constituents of Portland cement. | CO5 | L2 | 5M |
| | b | Discuss the properties of composite materials. | CO5 | L2 | 5M |

UNIT-V

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|----|---|---|-----|----|-----|
| 10 | | Explain briefly about the chemical and electrochemical methods of preparation of nano-metals. | CO6 | L2 | 10M |
| | | OR | | | |
| 11 | a | Discuss about Langmuir adsorption isotherms. | CO6 | L2 | 5M |
| | b | Explain the BET Equation. | CO6 | L2 | 5M |

*** END ***

