

B.E. CHEMICAL ENGINEERING THIRD YEAR FIRST SEMESTER
SUPPLEMENTARY EXAM 2024

CHEMICAL TECHNOLOGY-I

Time – 3 hrs

FM-100

To the point answer is encouraged

CO-1	<p>(i) How TDS, pH, temperature and water velocity affect Corrosion?</p> <p>(ii) Write down the working principle of Deaerators.</p> <p>(iii) Show the schematic of ion exchange water softening. Write down the involved reactions. Discuss how the regeneration process is accomplished.</p> <p>(iv) How the calcium carbonate scale in cooling tower is controlled employing solubilizing chemicals?</p>	8+6+12+8
CO-2	<p>(i) Discuss the roles of the following during production of nitric acid: Absorption Tower, Cooler condenser and bleaching tower.</p> <p>(ii) Discuss the method of high strength Nitric acid production or What are reason behind increment in NO_x emission.</p> <p>(iii) Discuss the roles of pressure and temperature during catalytic oxidation of SO₂ to SO₃.</p> <p>(iv) Schematically show the steps involved in sulphuric acid production plant.</p> <p>(vi) Write down the cell reactions in mercury cell and schematically discuss the process.</p> <p>(vii) Show the simplified PFD of Solvay process.</p>	6+6+4+6+8+6
CO-3	Write down different steps of cement manufacturing and the reactions involved. Why gypsum is added during final grinding step?	10
CO-4	<p>(i) Sketch the block diagram of carbon dioxide stripping Urea process.</p> <p>(ii) How CO₂, water and CO is removed during ammonia synthesis.</p> <p>(iii) Discuss the process description superphosphate and triple superphosphate production via suitable PFD.</p>	6+6+8