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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV • EXAMINATION – WINTER 2013

Subject Code: 141303 Date: 26-12-2013 **Subject Name: Chemical Engineering Processes Total Marks: 70** Time: 02:30 pm to 05:00 pm **Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 (a) Explain in detail the manufacturing process of Sulphuric acid by Contact 08 process with a neat flowsheet. **(b)** Write short note on following unit operations: 06 i) Leaching process ii) Drying process Explain manufacturing process of Urea in detail with a flowsheet. 07 0.2 Explain the manufacturing process of aniline. Discuss hazardous health 07 aspects related to aniline. OR **(b)** Explain the manufacturing process of nitric acid. List major safety hazards. 07 (a) Describe the manufacturing process of Acetic acid. Also discuss the major 07 0.3 engineering problems. (b) Discuss the different crushers and grinders used in industry for size 07 reduction. OR Q.3 Explain manufacturing process of Methanol. 06 Write short note on: **(b)** 08 (i) Froth floatation (ii) Shell and Tube heat exchanger. **Q.4** (a) List the major engineering problems in the manufacture of urea. Suggest 07 methods to minimize biuret production and various possible uses of biuret. **(b)** Discuss various methods of conveying of solids. 07 **Q.4** (a) Describe manufacturing process of acetic acid by oxidation. 06 **(b)** Write a short note on: 08 (i) cyclone separator. (ii) electrostatic precipitator 0.5 With a neat flowsheet describe the manufacture of Vinyl Chloride. 07 Explain hydrogenation of cotton seed oil with a flowsheet. 07 **(b)** Describe the manufacturing process of Vinyl Acetate. What are the uses of **07 Q.5** vinyl acetate? **(b)** Describe tray column and packed column used in distillation operation. **07**
