

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV • EXAMINATION – WINTER • 2014****Subject Code: 141303****Date: 31-12-2014****Subject Name: Chemical Engineering Processes****Time: 02:30 pm - 05:30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe the manufacturing process of Nitric acid with the help of a flowsheet. **07**
(b) Explain in detail the manufacturing process of Sulphuric acid by Contact process. Discuss the hazards related to the process. **07**
- Q.2** (a) Write short note on following unit operations: **08**
i) Extraction ii) Distillation.
- (b) Discuss the problem associated with urea manufacture. **06**
- OR**
- (b) Write about different types of equipment used for crushing and grinding operations. **06**
- Q.3** (a) Describe in brief the manufacturing process of Methanol. Discuss the pollution aspects related to the process. **08**
(b) Explain in brief the process of manufacture of Vinyl chloride. **06**
- OR**
- Q.3** (a) Write short note on: **08**
(i) shell & tube heat exchangers. (ii) hydrogenation of oil.
(b) Describe the manufacturing process of hydrogen cyanide. **06**
- Q.4** (a) Write manufacturing process of Monochloro acetic acid. List the related safety aspects. **08**
(b) Write short note on different types of conveyors. **06**
- OR**
- Q.4** (a) Explain the manufacturing process of Furfural by hydrolysis process. List the possible uses. **07**
(b) With a flowsheet describe manufacture of Vinyl acetate. List the major engineering problems. **07**
- Q.5** (a) Briefly explain the sources of pollution in Acetic acid manufacture. **06**
(b) Write in brief about: **08**
(i) electrostatic precipitator (ii) tray driers
- OR**
- Q.5** (a) Describe the manufacturing process of Ethanol. List the major industrial uses of ethanol. **07**
(b) Explain manufacturing process of Anilene with a flowsheet. What are the hazards related to the process? **07**
