

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (OLD) EXAMINATION – WINTER 2018****Subject Code:141303****Date: 14/12/2018****Subject Name: Chemical Engineering Processes****Time: 02:30 PM TO 05:00 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) Define: Nitrification. Explain manufacturing process of Nitric Acid and neat sketch of process diagram with it's safety measures. **07**  
(b) Define: Log Mean Temperature Difference (LMTD). Explain Heat Exchanger with its working principle and its classification along with neat sketch. **07**
- Q.2** (a) Define: Sulfonation. Explain manufacturing process of Ethanol and neat sketch of process diagram, reaction chemistry with its safety measures. **07**  
(b) Describe the working principle of Bag Filter with neat sketch. **07**
- OR**
- (b) Describe the working principle of Cyclone Separator with neat sketch. **07**
- Q.3** (a) Discuss the manufacturing process of Urea with Process Flow diagram and Uses. Identify the sources of pollution for the process of Urea. **07**  
(b) Give the following difference: **07**  
i. Unit Operation and Unit Process  
ii. Incineration and Pyrolysis
- OR**
- Q.3** (a) Discuss the manufacturing process of Aniline. Draw neat sketch and Identify the Unit Operation and Unit Process from the process flow diagram. **07**  
(b) Draw neat sketch of Process flow diagram of Ethyl Acetate with reaction chemistry. **07**
- Q.4** (a) Describe manufacturing process of Ethylene Chlorohydrin (ECH). Discuss safety measures and sources of pollution of ECH. **07**  
(b) Enlist the types of Reactors. Explain any one reactor with its working principle and neat sketch. **07**
- OR**
- Q.4** (a) What is MSDS. Briefly describe the Significance of MSDS in detail. **07**  
(b) Define: Halogenation. Explain the Manufacturing Process and Sources of Pollution of Vinyl Chloride. **07**
- Q.5** (a) Describe the production of Cellulose Acetate with chemical reaction. Identify the sources of pollution for the process of Cellulose Acetate. **07**  
(b) Discuss the manufacturing process of Acetic Acid. Draw neat sketch and Identify the Unit Operation and Unit Process from the process flow diagram. **07**
- OR**
- Q.5** (a) Describe the production of Phenol with chemical reaction. Identify the Unit Operation and Unit Process from the process flow diagram. **07**  
(b) Describe the working principle of Cyclone Separator with neat sketch. **07**

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