

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-III (New) EXAMINATION – WINTER 2015**

**Subject Code:2131304****Date:29/12/2015****Subject Name: Chemical Engineering Processes****Time: 2:30pm to 5:00pm****Total Marks: 70****Instructions:**

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

	MARKS
<b>Q.1 Short Questions</b>	<b>14</b>
1 Define: Unit Processes	
2 What is purpose of bucket elevators?	
3 Enlist the uses of Nitric acid	
4 What is biuret?	
5 Give reactions involved in the production of aniline	
6 Enlist the routes for vinyl chloride monomer production	
7 Enlist the uses of Ethanol	
8 Why hydrogenation of oil is carried out?	
9 What is hydrogen embrittlement?	
10 Why potassium permanganate is added to crude methanol?	
11 Enlist the size reduction equipments used in chemical Process industries	
12 Draw a neat sketch of pressurized spheres	
13 Write the properties of phenol	
14 Which catalyst is used in manufacturing of Cellulose Acetate?	
<b>Q.2 (a) Discuss the health aspects of vinyl chloride manufacturing</b>	<b>03</b>
<b>(b) Discuss reactor design of Methanol production.</b>	<b>04</b>
<b>(c) Explain in detail the process of hydrogenation of vegetable oil</b>	<b>07</b>
<b>OR</b>	
<b>(c) Enlist the major engineering problems involved during the hydrogenation of vegetable oil</b>	<b>07</b>
<b>Q.3 (a) Write down the reactions involved in manufacturing of Ethylene Chlorohydrin</b>	<b>03</b>
<b>(b) Explain in brief nickel catalyst preparation for hydrogenation of vegetable oil</b>	<b>04</b>
<b>(c) Discuss the health and safety issues involved with hydrogen cyanide production</b>	<b>07</b>
<b>OR</b>	
<b>Q.3 (a) Differentiate: Unit Processes and Unit Operation</b>	<b>03</b>
<b>(b) Explain the importance of Chemical Engineering Processes in environmental engineering</b>	<b>04</b>
<b>(c) With reference to Urea production, discuss autoclave variables, carbamate decomposition and heat dissipation in the autoclave</b>	<b>07</b>
<b>Q.4 (a) What is Quenching?</b>	<b>03</b>
<b>(b) Enlist the process design modification of Urea manufacturing</b>	<b>04</b>
<b>(c) Explain sources of pollution along with health and safety aspects of Nitric acid manufacturing</b>	<b>07</b>
<b>OR</b>	
<b>Q.4 (a) Draw a neat sketch of multiple effect evaporator</b>	<b>03</b>

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|------------|-----|--|-----------|
|            | (b) | Draw only a neat flow diagram of Hydrogen Cyanide production               | <b>04</b> |
|            | (c) | Explain furfural production with a neat sketch.                            | <b>07</b> |
| <b>Q.5</b> | (a) | Draw a neat sketch of continuous fractionators                             | <b>03</b> |
|            | (b) | Discuss the uses of Methanol   | <b>04</b> |
|            | (c) | Explain production of phenol in detail along with the sources of pollution | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.5</b> | (a) | What is purging?   | <b>03</b> |
|            | (b) | Write a short note: uses of Urea   | <b>04</b> |
|            | (c) | With the help of a neat flow diagram explain manufacturing of acetic acid  | <b>07</b> |

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