



**VII SEMESTER B.TECH. (CHEMICAL ENGINEERING)**

**MAKE UP EXAMINATIONS, JAN 2017**

**SUBJECT: CHEMICAL PROCESS INDUSTRIES [CHE 405]**

**REVISED CREDIT SYSTEM**

Time: 3 Hours

MAX. MARKS: 100

**Instructions to Candidates:**

- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data may be suitably assumed.

<b>1A.</b>	Discuss about the production of $N_2$ and $O_2$ by Linde's process with a neat flowsheet.	<b>[08]</b>
<b>1B.</b>	Explain the production of HCl from $H_2$ and $Cl_2$ . Also discuss about the kinetics and thermodynamics involved in the process.	<b>[08]</b>
<b>1C.</b>	Explain the working of Mercury cathode cell for the production of caustic soda and chlorine.	<b>[04]</b>
<b>2A.</b>	Discuss about the production of ammonia by Haber Bosch process with a neat flowsheet. Also mention its process design modifications.	<b>[11]</b>
<b>2B.</b>	Discuss about the production of urea with a neat flowsheet.	<b>[09]</b>
<b>3A.</b>	Discuss about the hydrogenation of oil with a neat flowsheet.	<b>[08]</b>
<b>3B.</b>	Discuss about the production of pulp by Kraft process with a neat flowsheet.	<b>[08]</b>
<b>3C.</b>	Discuss about the production of aryl-alkyl sulfonates.	<b>[04]</b>
<b>4A.</b>	Discuss about the production of starch from maize with a neat flowsheet.	<b>[08]</b>
<b>4B.</b>	Discuss about the fermentation process for the production of ethanol with a neat flowsheet.	<b>[10]</b>
<b>4C.</b>	Write a short note on inversion and caramelization of sugar.	<b>[02]</b>
<b>5A.</b>	Explain the production of viscose rayon with a neat flowsheet.	<b>[08]</b>
<b>5B.</b>	Discuss about the production of polyvinyl chloride from vinyl chloride monomer with a neat flowsheet.	<b>[08]</b>
<b>5C.</b>	Write a short note on additional processing of rubber.	<b>[04]</b>

<b>6A.</b>	Write a short note on the reaction mechanism involved in alkylation process.	<b>[06]</b>
<b>6B.</b>	Discuss about hydrocracking operation with a neat flowsheet.	<b>[08]</b>
<b>6C.</b>	What is cracking? What are its types? What are the operating condition pertaining to different types of cracking?	<b>[06]</b>

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