

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

CLASS: BE
BRANCH: CHEM/C & P

SEMESTER: VI/ADD
SESSION : SP/2019

SUBJECT : CL6003 INDUSTRIAL CHEMICAL PROCESS

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 Explain the manufacturing process of hydrochloric acid from gaseous hydrogen and chlorine with following notes: source of raw materials, process condition, chemical reaction, process flow diagram. [5]
- Q2 What are products available from electrolysis of brine? How do you separate hydrochloric acid after manufacturing? [5]
- Q3 Explain the manufacturing process of sulfuric acid by DCDA process with the following notes: process condition, chemical reaction, catalyst, process flow diagram, major engineering problems. [5]
- Q4 What is the major source of raw material for ammonia synthesis? What are the major chemical reaction involves in the ammonia synthesis process? [5]
- Q3 What are the necessities of nutrients in plants? What are sources of NPK nutrients? [5]
- Q4 Briefly explain the manufacturing process of syn gas for ammonia synthesis. [5]

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