

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

CLASS: B.E
BRANCH: CHEM ENGG. / CP&P

SEMESTER: VI
SESSION : SP/2020

SUBJECT : CL6003 INDUSTRIAL CHEMICAL PROCESSES

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 complete procedure of production of Soda Ash with the help of flow sheet and suitable reactions. [5]
- Q2 Briefly discuss about the electrolysis process for the production of Chlorine-Caustic Soda by the following methods with the help of schematic diagram and suitable reactions? [5]
1) Diaphragm Electrolytic cell
2) Mercury Electrolytic cell
- Q3 (a) What are the various sulfur recovery processes? Which is the most common sulfur recovery process? [2]
(b) Write down the chemical reactions involved in Claus process. Also, discuss the major engineering problems in sulfur recovery. [3]
- Q4 (a) How conversion of SO_2 to SO_3 in manufacturing of sulfuric acid is affected by temperature and pressure? [2]
(b) Discuss the manufacturing of sulfuric acid with neat flow sheet. [3]
- Q5 Describe the manufacture of O.P.C by wet and dry methods and differentiate between them? [5]
- Q6 (a) I. What is the name of the reactor used for cooking during pulping process? [2]
II. What is the name of the machine used in paper making process?
(b) Differentiate between sulfate (Kraft) and sulfite pulping processes for pulp manufacturing. [3]

::: 03/03/2020 :::M