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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

V SEMESTER B.TECH. (CHEMICAL ENGINEERING)

MAKEUP EXAMINATIONS, NOV/DEC 2017

SUBJECT: CHEMICAL PROCESS INDUSTRIES [CHE3104]

**REVISED CREDIT SYSTEM
(15/11/2017)**

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitable assumed.

1A.	Write about the extraction of sulfur from pyrites (no diagram required). Explain the classification of polymers based on functionality.	3 (1+2)
1B.	Explain about the manufacture of CO ₂ with the help of a neat diagram.	3
1C.	Clearly explain the manufacture of HNO ₃ using Ostwald's process with the help of a neat diagram. Write any one advantage and disadvantage of using this process.	4 (3+1)
2A.	Explain the manufacture of NaCl (solar evaporation) with a help of a neat diagram. Write any two uses of NaOH?	3 (2+1)
2B.	With the help of a neat diagram, Explain the refining of petroleum.	4
2C.	Clearly explain the conditions favorable for fermentation.	3
3A.	Explain the manufacture of sodium carbonate with the help of a reaction equations. Write any two uses of Na ₂ CO ₃ . (No diagram needed)	3 (2+1)
3B.	With the help of neat flow diagram clearly explain (step- by- step) the Vegetable oil extraction process. What is rancidity and how do we control rancidity in oils?	4 (3+1)
3C.	Explain about the manufacture of yellow phosphorous with the diagram. How do you prepare red phosphorus from yellow phosphorous?(only explanation)	3 (2+1)
4A.	Write about the manufacture of absolute alcohol from molasses with the help of a diagram.	4
4B.	Explain the manufacture NaOH using mercury Cell process with the help of a neat diagram and reaction equations. Write any two uses of Cl ₂ .	3 (2+1)
4C.	With the brief description of liquefaction of air, Explain about the linde's process.	3
5A.	Explain the manufacture of Acetone and Butanol from corn starch using a neat flow diagram.	3

5B.	Write any two uses of ammonium sulfate and explain the gypsum process for its manufacture with reaction equations and diagram.	4 (1+3)
5C.	Explain the manufacture of super phosphate with a help of neat diagram and the reaction equation.	3

