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Total number of pages:[2]

B.Tech. || CHE || <sup>P.D</sup> 3<sup>rd</sup> Sem.

## Chemical Process Industries

Subject Code:BTCH-305A

Paper ID:

Time allowed: 3 Hrs

Max Marks: 60

### Important Instructions:

- All questions are compulsory
- Assume any missing data
- Additional instructions, if any

### PART A (10x 2marks)

Q. 1. Short-Answer Questions:

- Give the composition of borosilicate glass with its applications.
- Describe various methods of pulping
- Discuss the catalyst for hydrogenation
- Define Portland cement and give its composition
- Distinguish between diaphragm and membrane process
- Distinguish between solvay and modified solvay process
- Give the names of few ammonia based fertilizers
- Give the uses of nitric acid
- Distinguish between soaps and detergent
- Discuss the environmental consideration of pulp and paper industry.

### PART B (5x8marks)

Q. 2.

- Discuss with the help of a flow diagram the continuous process of fatty acids, soap and glycerin formation. (6)

CO1

- Discuss the present status of soap and detergent industries in India (2)

OR

- Explain with the help of a diagram the hydrogenation process of oil? (4)
- Explain the engineering problems of hydrogenation problem of oil. (4)

CO1

- Q. 3. a) Discuss with the help of a flow diagram of the cane sugar refining.

CO2

- With the help of a flow diagram discuss the recovery process in pulp and

paper industry

OR

CO2

- a) Discuss with the help of a diagram production of hydrochloric acid
- b) Discuss with the help of flow diagram production of urea.

- Q. 4. a) Explain with the help of a diagram and all the chemical reactions involved the manufacture of soda ash by Solvay Process (6) CO3
- b) Give the current issues of soda ash industry (2)

OR

- a) With the help of a flow diagram explain the electrolytic process for Chlorine- Caustic Soda production.
- b) Give the latest types of cells used in the chloro alkali industry along with its advantages.

- Q. 5. Give the environmental considerations of Sugar industry. CO3

OR

Give the environmental considerations of pulp and paper industry. CO4

- Q. 6. Discuss in detail the various types of cements along with their properties and explain in detail manufacture process of Portland cement with the help of diagram. CO5

OR

Give the manufacturing process of glass along with its various types with their properties. CO5