T.E Dec 14 Sem-I (CT)

Chemical Technology

QP Code : 14833

(3 Hours) **[Total Marks : 80]**

N.B. : (1) Question 1 is compulsory
(2) Answer any three questions out of remaining five questions.
(3) Draw flow sheet, balanced equations wherever necessary.
(4) Number to the right indicate marks.

1. (a) Describe constructional and operational features of ammonia converter. 5
(b) Discuss engineering problems in manufacture of hydrochloric acid. 4
(c) Describe along with flow diagram how and why xylene isomerization is carried out. 7
(d) Discuss economical and engineering problems associated with sugar industry. 4

2. (a) Describe DCDA process for the manufacture of sulphuric acid from elemental sulphur with reference to 12
- Why multistage reactor used
- Why is interpass absorbtion done?
- How is energy conservation achieved?
- What are the typical process Conditions.

(b) Describe manufacture of purified terepthalic acid. 8

3. (a) Describe manufacture of Phenol from cumene 10
(b) Describe manufacture of soda ash by Solvay process with detail working of carbonating tower. 10

4. (a) What is LDPE, HDPE, LLDPE? Describe manufacture of LLDPE. 8
(b) Compare naphtha reforming and cracking process on the basis of objective, product distribution and process conditions. 8
(c) Write short note on unit operations and unit processes used in chemical process. 4

5. (a) Describe manufacture of Urea. How biuret formation is minimized and why? What are the strategies used to reduce corrosion. 10
(b) Describe manufacture of Phosphoric acid by wet process using sulphuric acid. What is hemihydrate Process? What are its advantages? 10

6. Write short notes on any four :- 20
(a) Biodiesel
(b) Oil hydrogenation.
(c) Challenges faced by chemical industries in India.
(d) Manufacture of acetylene by partial oxidation.
(e) Membrane cell used for manufacture of caustic soda.
