

B.Tech. Fifth Semester (Chemical Engineering) (CGS)  
**10154 : Chemical Engineering Process - I**  
**(Inorganic Chemical Technology) : 5 CH 02**

P. Pages : 2

Time : Three Hours

**AW - 3146**

Max. Marks : 80

- Notes :
1. Answer **Three** question from Section A and **Three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and chemical equations should be given wherever necessary.
  5. Illustrate your answer necessary with the help of neat sketches.
  6. Discuss the reaction, mechanism wherever necessary.
  7. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. Explain in detail the manufacturing of sugar from sugarcane with suitable reaction mechanism & neat flow diagram & explain in short the by products obtain in sugar industry. **14**

**OR**

2. a) Explain in detail the various starch derivatives with suitable reaction mechanism. **6**  
b) Give a raw material chemical reaction used in soap & glycerin industry & explain it in detail with neat flow diagram. **8**
3. a) Discuss in detail the important difficulties in growth of cement industry in India. **6**  
b) With suitable reaction mechanism explain in detail the production of slaked & hydrated lime. **7**

**OR**

4. What are the various raw material used for manufacturing of paper & explain in detail the manufacturing of white paper in paper industry. **13**
5. With suitable flow diagram explain in detail the steam reforming process for preparation of synthesis gas. **13**

**OR**

6. a) What are the main component of LPG & how it is prepared explain in detail. **6**  
b) Explain in detail the production of producer gas with neat flowsheet. **7**

**SECTION - B**

7. Explain in detail the production of Sulphuric acid and oleum by contact process. **14**

**OR**

8. What is mean by fertilizers. Explain in detail the manufacturing of single super phosphate & triple super phosphate in detail. 14
9. a) Define electrochemistry & classify electrochemical industries with example. 4
- b) Define fuel cell and give the characteristics of Hydrogen fuel cell. 4
- c) Define Arc process and give the application of High Intensity arc to chemical processing. 5

OR

10. With neat labelled flow diagram explain in detail the manufacturing of soda-ash by Solvay process. 13
11. a) Give the application of titanium & aluminium in detail. 6
- b) With suitable reaction mechanism & flow diagram explain the preparation of  $TiO_2$  by sulphuric acid & chloride process. 7

OR

12. Explain the detail process of purification of alumina from bauxite by Bayer's process. 13

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