

Registration No. :

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Total number of printed pages – 2

B.Tech  
PCCH 4202

**Special Examination – 2012**  
**CHEMICAL PROCESS TECHNOLOGY**

Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.  
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 × 10
- (a) Mention the properties and uses of caustic soda.
- (b) Mention the properties and uses of hydrochloric acid.
- (c) Why the hydrogenation of oil is necessary ?
- (d) Write the chemical reactions involved for the soap production.
- (e) Name the chemicals recovered from black liquor.
- (f) Why are pigments used ? Give examples of coloured and white pigments.
- (g) Write the formula and properties of sucrose.
- (h) What is dialdehyde starch ? Mention the chemical reactions.
- (i) What is fiber ? Give some examples.
- (j) Write the structure and properties of polyethylene.
2. Discuss in detail the Solvay process for soda ash production with a neat flow sheet. Also discuss the major engineering problems associated with its production. 4+3+3

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3. Discuss in detail the Contact process for sulfuric acid production with a neat flow sheet. Also discuss the major engineering problems associated with its production. 4+3+3
4. (a) Write the chemical composition and physical properties of vegetable oils. 4
- (b) Discuss the methods of extracting vegetable oils. 6
5. Discuss in detail with a neat flow sheet the Kraft process of pulp production giving emphasis on major engineering problems. 3+3+4
6. Discuss in detail with a neat flow sheet the production of ethyl alcohol by fermentation process giving emphasis on major engineering problems. 3+3+4
7. (a) Write the properties and uses of phenol formaldehyde. 2
- (b) Discuss the production of phenol formaldehyde with a neat flow sheet. Also mention the chemical reactions. 4+2+2
8. Write short notes on any **two** : 5×2
- (a) Synthetic detergents
- (b) Dextrin
- (c) Natural dyes
- (d) Polyvinyl acetate.