

TE - sem - V (CBSEs) chemical - chemi. Technology  
 Chemical Technology.

22/11/16

Q.P. Code : 573602

(3 hours)

Marks : 80

- Note : 1) Question No. 1 is compulsory.  
 2) Solve any three questions from remaining five questions.  
 3) Draw flow sheets and diagrams wherever necessary.

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|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 1. a) | Which products we get after hydrogenation and hydrolysis of vegetable oils? Explain with help of chemical reaction. What are uses of the products obtained?                                                                         | 4  |
| b)    | List all unit operations and unit processes in manufacture of Nylon 66.                                                                                                                                                             | 4  |
| c)    | Is Dual Solvay process use for manufacturing of soda ash superior to Solvay process? Explain.                                                                                                                                       | 4  |
| d)    | What is catalytic reforming? How it is different than catalytic cracking?                                                                                                                                                           | 4  |
| e)    | What are constituents of commercial detergents?                                                                                                                                                                                     | 4  |
| 2. a) | Describe manufacturing of phosphoric acid by IMI-Hydrochloric acid leaching process with help of neat flow sheet. Is this process more economical to strong sulfuric acid leaching process? Discuss the major engineering problems. | 10 |
| b)    | Discuss advantages and disadvantages of different processes used for manufacture of acetic acid.                                                                                                                                    | 10 |
| 3. a) | What is fermentation? Discuss manufacture of ethanol from molasses by fermentation. Mention uses of byproducts obtained. How to get 100% pure ethanol?                                                                              | 10 |
| b)    | Discuss manufacturing of hydrogen by Steam-Hydrocarbon Reforming Process.                                                                                                                                                           | 10 |
| 4. a) | Which isomer of xylene have most industrial uses? Describe the process used for isomerization of xylenes.                                                                                                                           | 10 |
| b)    | Explain in detail properties and applications of HDPE, LDPE and LLDPE. Why LLDPE is replacing LDPE in most applications?                                                                                                            | 10 |
| 5. a) | Explain the advantages and disadvantages of manufacturing of phenol by different methods.                                                                                                                                           | 10 |
| b)    | Describe manufacture of soap by continuous hydrolysis and saponification.                                                                                                                                                           | 10 |
| 6. a) | Explain in details about mercury, diaphragm and membrane cells used in manufacture of caustic soda by electrolysis of brine. What are their advantages and disadvantages? Why were mercury cells discontinued?                      | 10 |
| b)    | Write short note on (any two)                                                                                                                                                                                                       | 10 |
| i)    | Dye stuff industry in India.                                                                                                                                                                                                        |    |
| ii)   | Impact of imports from China and south east asia on Indian chemical industry                                                                                                                                                        |    |
| iii)  | What are basic, fine and specialty chemical industries? What is current status of these industries in India?                                                                                                                        |    |