

(3 Hours)

(Total Marks : 80)

Please check whether you have got the right question paper.

N.B. : 1) Question no. 1 is compulsory.

2) Solve any three questions from remaining five questions.

3) Draw flow sheets and diagrams wherever necessary.

1.
 - a) Explain isomerization of xylene. (06)
 - b) Explain membrane cell used in manufacturing of caustic soda. (04)
 - c) Explain hydrogenation of vegetable oil. What are the products obtained from the hydrogenation of vegetable oil? (06)
 - d) Explain catalytic convertor used in manufacturing of ammonia with neat sketch. (04)
2.
 - a) Explain with process flow diagram manufacture of phosphoric acid by wet (HCL leaching) process. (10)
 - b) Explain the following engineering problems related to urea synthesis:- (10)
 - i) Autoclave variable
 - ii) Carbamate decomposition and recycle.
 - iii) Production of granular urea.
 - iv) Corrosion.
3.
 - a) Explain with process flow diagram manufacture of cumene from benzene and propylene. (10)
 - b) What is inversion of sugar? Explain manufacturing of sugar with process flow diagram. (10)
4.
 - a) Describe the manufacturing process used for synthesis of BTX. (10)
 - b) Explain the manufacture of soda ash by Solvay process. How it is different from dual process? (10)
5.
 - a) What are HDPE, LDPE and LLDPE? Explain manufacturing of HDPE. (10)
 - b) Describe manufacturing process of styrene starting from ethyl benzene. What are the major engineering problems associated with the process? How will you produce 99.9% pure styrene. (10)
6. Write short note on (20)
 - i) Fluidized catalytic cracking unit
 - ii) Agrochemical industry in India
 - iii) Principles used in chemical process industry
 - iv) Manufacture single super phosphate