



- 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 Chemicals 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. a) Explain preparation of α - nitronaphthalene. 7
b) Describe manufacture of potassium anthraquinone sulfonates. 7

OR

2. a) Write any two nitration reaction. Discuss Biazzi nitrator. 7
b) Discuss preparation of ethanol. Give the uses and application of sulfonates & sulfates. 7
3. a) What is hydrogenation? Describe hydrogenation of a gas oil. 7
b) How we can prepare Chloral? 6

OR

4. a) Discuss the synthesis of methanol. 7
b) Discuss chlorination of benzene. 6
5. a) Explain oxidation of Liquid petroleum hydrocarbon by James process. 7
b) Explain treatment of effluent given to distillery Industry. 6

OR

6. a) Describe oxidation of Isoborneol. 7
b) Draw flow diagram and explain treatment of effluent given to textiles rayon industry. 6

SECTION - B

7. What are uses and application of helium in industry? Describe manufacture process of helium in details. 14

OR

8. What are sources of water? Describe zeolite process for water treatment with neat sketch. 14
9. Explain manufacturing process of hydrochloric acid in details. Give their uses and applications. 13

OR

10. Explain production of magnesium compounds from sea water. With neat flow diagram. 13
11. With the help of flow diagram describe manufacturing process for urea by Stamicarbon urea stripping process. Give their uses. 13

OR

12. Give the classification of electrochemical industries. Describe high temperature fuel cell using coal. 13
