

17314

14115

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any **SIX** of the following: **12**
- (i) Write down chemical reaction involved in manufacturing of sulphuric acid by DCDA process.
 - (ii) Name two methods of production of cement.
 - (iii) Write any four uses of acetylene.
 - (iv) State Lechatelier's principle for ammonia synthesis.
 - (v) Name any two methods of manufacturing of hydrochloric acid.
 - (vi) Name two methods in the production of ammonium sulphate with the chemical reaction involved in the same.
 - (vii) Write down any four industrial application of sulphuric acid.
 - (viii) What is biurate? Also write down reaction involved in it.

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- b) **Attempt any TWO of the following:** **08**
- (i) Discuss the raw materials used for the manufacturing of cement.
 - (ii) State Linde's and claudes principle for manufacturing of Oxygen and Nitrogen.
 - (iii) Draw well labeled flow diagram for the manufacturing of ammonia.
2. **Attempt any TWO of the following:** **16**
- a) Describe manufacturing process of area with well labeled flow diagram.
 - b) Describe with diagram manufacturing process of phosphorous by electrothermal process.
 - c) Describe manufacturing process of soda ash by solvay's ammonia soda process with flow diagram.
3. **Attempt any FOUR of the following:** **16**
- a) Draw and describe Nelson's cell used in manufacturing of chlorine and caustic soda.
 - b) Explain phosphorous trichloride manufacturing process with flow diagram.
 - c) Draw well labeled diagram for the manufacturing of hydrochloric acid.
 - d) State any two uses of phosphorous and write down structure of white phosphorous and red phosphorous.
 - e) Write down chemical reaction involved in the following:
 - (i) Wet process for production of phosphoric acid.
 - (ii) For the production of phosphorous penta chloride.
 - f) Write reaction involved in manufacturing of each of following:
 - (i) Sodium carbonate
 - (ii) Caustic soda

- 4. Attempt any FOUR of the following:** **16**
- a) Name the methods of production of carbondioxide. Describe any one of them in brief.
 - b) Draw well labeled flow diagram for the manufacturing of cement by wet process.
 - c) Describe with well labeled flow diagram for the manufacturing of single surperphosphate.
 - d) Explain calcium carbide process for the manufacturing of acetylene with flow diagram.
 - e) Write down chemical reaction involved of each of the following:
 - (i) Soda ash production
 - (ii) Hydrochloric acid production.
 - f) Write any two industrial application of each of following:
 - (i) Chlorine
 - (ii) Oxygen and Nitrogen
- 5. Attempt any TWO of the following:** **16**
- a) Describe DCDA process for the manufacturing of sulphuric acid with flow diagram.
 - b) Describe manufacturing process of hydrogen from natural gas as an starting material with flow diagram.
 - c) Describe manufacturing process of Nitric acid with well labeled flow diagram.

6. Attempt any FOUR of the following:**16**

- a) Write any two industrial application of each of the following:
 - (i) Acetylene
 - (ii) Water gas
 - b) Describe dry process for the production of cement.
 - c) Draw well labeled diagram for the manufacturing of ammonium nitrate.
 - d) Describe water gas manufacturing process with diagram.
 - e) Write physico chemical principle of each of following:
 - (i) Ammonia
 - (ii) Urea
 - f) Write down chemical reaction involved in the production of each of following
 - (i) Phosphoric acid.
 - (ii) Triple super phosphate.
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