

17314

11819

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) Assume suitable data, if necessary.
 - (6) 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
- (a) Write any two advantages of DCDA process.
 - (b) Give the name of catalyst used in manufacturing of sulphuric acid by DCDA process.
 - (c) State any four industrial uses of H_2SO_4 .
 - (d) Write physical and chemical properties of sulphuric acid.
 - (e) Write the reactions involved in manufacturing of sulphuric acid.
 - (f) Write any four industrial applications of nitric acid.
 - (g) Define electrolysis.
 - (h) Give any four types of cement.

- (B) Attempt any TWO of the following :** **8**
- (a) Draw flowsheet of manufacturing of HCl.
 - (b) State Linde and Claud's principles.
 - (c) Give list of pollutants from cement industry. Write a name of device used to control pollution in cement industry.
- 2. Attempt any TWO :** **16**
- (a) Describe manufacturing of urea with neat flow diagram.
 - (b) Explain manufacturing process of phosphorous trichloride (PCl_3) and phosphorous pentachloride (PCl_5).
 - (c) Explain with neat flow diagram manufacturing of soda ash.
- 3. Attempt any FOUR :** **16**
- (a) Distinguish between single superphosphate and triple superphosphate with respect to chemical formula, application and properties.
 - (b) State leaching and give application of it.
 - (c) Give the process of conversion of yellow phosphorous to red phosphorous.
 - (d) Give the reactions involved in manufacturing of HCl by soda & salt process.
 - (e) Write formula for sodium amalgam ? State its role in caustic soda manufacturing process.
 - (f) Give four industrial applications of soda ash.

4. Attempt any FOUR :**16**

- (a) Distinguish between diaphragm cell and mercury cell process.
- (b) Explain manufacturing process of phosphoric acid by H_2SO_4 leaching process.
- (c) Name engineering problems involved in manufacturing of soda ash.
- (d) Write the reaction involved in manufacturing of water gas. State composition of water gas.
- (e) What precautions is to be taken while handling acetylene gas ?
- (f) Draw neat flow diagram of producer gas manufacturing process.

5. Attempt any TWO :**16**

- (a) Describe the manufacturing process of ammonia gas with neat flow diagram.
- (b) Distinguish between water gas and producer gas with respect to
 - (i) raw materials
 - (ii) composition of gases
 - (iii) application of gases
 - (iv) calorific value
- (c) Explain manufacturing process of urea with neat flow diagram.

P.T.O.

6. Attempt any FOUR :**16**

- (a) Give four uses each of dry ice and oxygen.
 - (b) Define hardening and setting of cement.
 - (c) Distinguish between dry and wet process of cement.
 - (d) Give the manufacturing process of hydrogen gas by using natural gas.
 - (e) Write the reactions involved in manufacturing of phosphoric acid by HCl leaching process.
 - (f) Give the importance of mixed fertilizers.
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