

22314

11920

3 Hours / 70 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. Attempt any FIVE of the following :

10

- (a) Name any four industrial fuel gases.
- (b) Define Cement.
- (c) Write the cell notation for diaphragm cell.
- (d) State any two uses of Phosphorus.
- (e) Give industrial application of Ammonia.
- (f) Name any two catalyst's used for manufacturing of Sulfuric acid.
- (g) Enlist raw material for the manufacturing of Urea.

2. Attempt any THREE of the following :

12

- (a) Draw process flow diagram for manufacturing of Nitric acid.
- (b) Explain manufacturing of Ammonium nitrate.
- (c) Draw the process flow diagram for manufacturing of Super phosphate.
- (d) Explain Ammonia recovery in Solvay's process for the production of Soda ash.

- 3. Attempt any THREE of the following : 12**
- (a) Describe setting and hardening of cement.
 - (b) Explain manufacturing of oxygen and Nitrogen by Claude's process.
 - (c) Give any two properties and uses of sulfuric acid.
 - (d) Draw process flow diagram for manufacturing of Urea.
- 4. Attempt any THREE of the following : 12**
- (a) Compare single and triple superphosphate with respect to raw materials, uses and chemical formula.
 - (b) Explain the importance of mixed fertilizers in agricultural sector.
 - (c) Give classification of refractory and describe any one type of refractory.
 - (d) Explain manufacturing of Producer gas with process flow diagram.
 - (e) Draw process flow diagram for manufacturing of Caustic soda and Chlorine.
- 5. Attempt any TWO of the following : 12**
- (a) Describe manufacturing of Hydrochloric acid with chemical reaction and process flow diagram.
 - (b) Describe the following points with respect to manufacturing of Urea.
 - (i) Temperature
 - (ii) Pressure
 - (iii) Formation of Biuret
 - (c) Draw a process flow diagram for manufacturing of Phosphorus.
- 6. Attempt any TWO of the following : 12**
- (a) Define mixed fertilizer. Write any two reactions involved in manufacturing of mixed fertilizer and meaning of 30-30-40.
 - (b) Explain manufacturing of Acetylene using Calcium carbide as a raw material.
 - (c) Apply the Physico – Chemical principle in the manufacture of Sulphuric acid by contact process.
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