# 22314

## 12425 3 Hours / 70 Marks

Seat No.

Instructions :	(1)	All Questions are <i>compulsory</i> .	
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- (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.

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### 1. Attempt any FIVE of the following :

- (a) List two industrial applications of producer gas.
- (b) Define Refractory.
- (c) Enlist two industrial applications of soda ash.
- (d) List two uses of phosphorus.
- (e) Write the chemical reactions involved in manufacturing of urea.
- (f) Enlist raw materials used for manufacturing of sulfuric acid.
- (g) Enlist the raw materials required in manufacturing of Ammonium Nitrate.

#### 2. Attempt any THREE of the following :

- (a) Draw process flow diagram for manufacturing of phosphoric acid by wet process.
- (b) Explain the manufacturing process of Ammonium Nitrate.
- (c) Draw process flow diagram for manufacturing of single superphosphate.
- (d) Explain the importance of mixed fertilizer in agricultural sector.



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#### **3.** Attempt any THREE of the following :

- (a) Explain the hardening and setting of cement.
- (b) Explain manufacturing of Acetylene using Calcium carbide as a raw material.
- (c) Write properties and uses of chlorine and caustic soda.
- (d) Explain ammonia recovery in Solvey's process for the production of soda ash.

#### 4. Attempt any THREE of the following :

- (a) Compare single and triple superphosphate w.r.t. raw material, chemical reaction and chemical formula.
- (b) Define mixed fertilizer. Explain the term IS 15 15.
- (c) Draw process flow diagram for manufacturing of cement.
- (d) Explain manufacturing of carbon dioxide from flue gases.
- (e) Draw labelled diagram of mercury cell.

#### 5. Attempt any TWO of the following :

- (a) Explain manufacturing of Nitric acid with process flow diagram.
- (b) Explain the manufacturing of urea with process flow diagram.
- (c) Describe manufacturing of phosphorus with process flow diagram.

#### 6. Attempt any TWO of the following :

- (a) Explain manufacturing of Triple superphosphate with process flow diagram.
- (b) Explain manufacturing of oxygen and nitrogen by Claude's process.
- (c) Apply the principle of DCDA in manufacturing of sulfuric acid with flow diagram.

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