

17314

21819

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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any SIX :

6 × 2 = 12

- (a) Write merits and demerits of contact process.
- (b) Write the properties of sulphuric acid.
- (c) Give the application of sulphuric acid.
- (d) Write down chemical reaction involved in manufacturing of sulphuric acid by DCDA process.
- (e) What is fuming sulphuric acid ?
- (f) State Le Chatelier's principle for ammonia synthesis.
- (g) Write two properties of (i) Chlorine, (ii) Caustic soda.
- (h) Define hardening of cement.

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(B) Attempt any TWO :

2 × 4 = 8

- (a) Write the cell notation for diaphragm cell for manufacturing of caustic soda.
- (b) Describe Linde's process for manufacturing of oxygen and Nitrogen with well labelled diagram.
- (c) What is Cement ? Give the chemical composition of Portland cement.

2. Attempt any TWO :

2 × 8 = 16

- (a) Describe the manufacturing of ammonia with flow sheet diagram.
- (b) Explain manufacturing process for triple superphosphate with diagram.
- (c) Describe Solvay's process for the manufacturing of sodium carbonate with process flow diagram.

3. Attempt any FOUR :

4 × 4 = 16

- (a) Describe extraction of phosphorus by electro-thermal process.
- (b) Draw the structures of white and red Phosphorus and give the properties of white phosphorus.
- (c) Compare the wet process and electric furnace process of phosphoric acid. (any four points).
- (d) Discuss the principles involved in the manufacturing of caustic soda.
- (e) Describe the manufacturing process of hydrochloric acid. (any one)
- (f) Describe Mercury cell in manufacturing of chlorine and caustic soda by neat labelled diagram.

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4. Attempt any FOUR :

4 × 4 = 16

- (a) What is ammonical brine ? How is it produced in Solvay's process ?
- (b) 'Now-a-days mixed fertilizers are more popular.' Explain.
- (c) Explain manufacturing of Phosphorus pentachloride.
- (d) State four uses of soda ash. Write reactions involved in carbonation tower.
- (e) State four properties of hydrogen gas. State its four uses.
- (f) Describe Claude's process, giving the principles involved in it.

5. Attempt any TWO :

2 × 8 = 16

- (a) Describe manufacturing process of Nitric acid with well labelled flow diagram.
- (b) Name the methods of production of carbon dioxide. Describe any one of them in brief.
- (c) Describe manufacturing process of Urea with well labelled flow diagram.

6. Attempt any FOUR :

4 × 4 = 16

- (a) Write four uses of Nitrogen and oxygen gases.
 - (b) What are the relative advantages and disadvantages of high alumina cement as compared with portland cement ?
 - (c) Give the properties and uses of ammonia. (any four)
 - (d) Discuss the principle involved in manufacturing of producer gas.
 - (e) Describe manufacturing process for phosphorus tri-chloride.
 - (f) What is biurate ? Also, write down reaction involved in it.
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