22314

11819

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Attempt any FIVE of the following : **10**

(a) Write the principle in the manufacturing of oxygen and nitrogen.
(b) Write the significance of calcinations for cement process.
(c) Write any two properties and any two applications of caustic soda.
(d) Define red and yellow phosphorus.
(e) List the industrial applications of ammonium nitrate.
(f) Write the reaction involved in manufacturing of sulphuric acid.
(g) Give any two properties of area and also raw materials used for urea.

2. Attempt any THREE of the following : **12**

(a) Explain the manufacturing process of nitric acid.
(b) Draw the process flow diagram for manufacturing of ammonium nitrate.
(c) Distinguish between single and triple superphosphate with respect to raw material and uses.
(d) Draw process flow diagram of manufacturing of soda ash.

3. Attempt any THREE of the following : **12**

(a) Classify the cement on the basis of constituents.

(b) Draw a flow sheet diagram of manufacturing of producer gas and explain its working.

(c) Draw a process flow diagram for manufacturing of sulphuric acid.

(d) Write the industrial applications of (i) Urea (ii) Ammonia.

4. Attempt any THREE of the following : **12**

(a) Explain how yellow phosphorous is converted into red phosphorus.

(b) Describe the manufacturing process of potassium fertilizer.

(c) Describe the various types of refractivity.

(d) Explain manufacturing of water gas with the help of process flow diagram.

(e) Describe the importance of mixed fertilizer in agriculture sector.

5. Attempt any TWO of the following : **12**

(a) Explain the manufacturing process of phosphoric acid with chemical reaction and process flow diagram.

(b) Give the raw materials, chemical reaction and industrial application for manufacturing of ammonium sulphate.

(c) Explain the manufacturing of Di-ammonium phosphate with a process flow diagram.

6. Attempt any TWO of the following : **12**

(a) Describe the manufacturing process of caustic soda with process flow diagram.

(b) Explain the concept of absorption for the manufacturing of carbon dioxide.

(c) Write down the industrial application of following :

(i) Hydrochloric acid

(ii) Sulphuric acid

(iii) Nitric acid
