

22615

24225

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.

**Marks**

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

**10**

- (a) List the name of fertilizer industries in India. (any 2)
- (b) List any two initiatives taken by Central Government for marketing of biofertilizer.
- (c) Write four applications of ammonia.
- (d) List any two raw materials used for production of ammonium chloride.
- (e) Write application of Triple superphosphate.
- (f) Identify devices used for storage of NPK fertilizers.
- (g) Write importance of bio-fertilizer.

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

**12**

- (a) Explain importance and application of fertilizer nutrients.
- (b) Explain the importance of macro nutrients in fertility of soil.
- (c) Write secondary nutrients and raw materials for phosphatic and potassic fertilizer.
- (d) Explain development of fertilizer industry in India.



- 3. Attempt any THREE of the following : 12**
- (a) Explain the construction and working of ammonia converter.
  - (b) Describe the manufacturing of ammonium chloride with flow diagram.
  - (c) Give the raw materials and method of production of calcium ammonium nitrate with reaction and flow diagram.
  - (d) Write in brief proper storage and transportation of Ammonia.
- 4. Attempt any THREE of the following : 12**
- (a) Explain the method of production of Diammonium phosphate with flow diagram.
  - (b) Describe the manufacturing of triple superphosphate with raw material required.
  - (c) Write the application of single superphosphate and how it is stored.
  - (d) Compare single superphosphate with triple superphosphate w.r.t. chemical reaction & raw materials.
  - (e) Draw the flow diagram of production of single superphosphate.
- 5. Attempt any TWO of the following : 12**
- (a) Explain method of production mixed fertilizer (NPK fertilizer).
  - (b) Describe method for production of nitro phosphate with raw materials, reaction and flow diagram.
  - (c) Explain the importance of mixed fertilizers in agriculture.
- 6. Attempt any TWO of the following : 12**
- (a) Write the methods of preparation of Bio-fertilizer by using kitchen waste.
  - (b) Describe the methods of preparation and precautions of Vermi compost.
  - (c) Explain initiative and schemes of Central and State government towards Bio-fertilizers.
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