Registration No.										

Total number of printed pages - 02

B.TECH
PECH5302

6th Semester Regular / Back Examination 2016 - 17
FERTILIZER TECHNOLOGY

BRANCH : Chemical Engineering
Time : 3 Hours
Max Marks : 70
Question Code : Z687

Answer Question No. 1 which is compulsory and any FIVE from the rest.
The figures in the right-hand margin indicate marks.
Answer all parts of a question at a place.

1. Answer the following questions : 2 x 10

(a) Mention the macronutrients and micronutrient required for plant growth.
(b) What do you understand by soil conditioner and liming material?
(c) Why subsidy are given on fertiliser in India ?
(d) What are the different end uses of urea?
(e) What are the merits of organic fertilizer over inorganic fertilizers?
(f) Mention the different mineral form of phosphate rock.
(g) What is primary nutrient? Mention its particular rolls for plant development.
(h) Mention the different processes available for the manufacturing of phosphoric acid.
(i) What are the challenges in fertiliser industries ?
(j) Mention the mineral form of phosphate rock. Also write some of the rock phosphate deposits in India.

2. (a) With all possible reactions, discuss in detail about Haber process for the production of Liquid Ammonia. **08**

(b) Discuss about the potential health effect by the uses of ammonia. **02**

3. Mention in detail about urea production from ammonium carbamate with all possible reactions, properties, and major challenges during the production process. **10**

4. (a) What is the identifying information for phosphorous? **02**

(b) Discuss in detail about red phosphorous production. **08**

5. Discuss in detail about calcium phosphate production from phosphate rock with all possible reactions. **10**

6. With a neat flow sheet discuss in detail about the manufacture of Nitro lime giving emphasis on properties, chemical reactions, uses, granulation, and major engineering challenges. **10**

7. **(a)** What are the effects of inorganic fertilizers and other agro chemicals on soil and plant? **04**

(b) Discuss the major organic sources, their improved methods of preparation for end users. **06**

8. **Write short notes on any TWO:** **5 x 2**

(a) Producer gas
(b) Potassium chloride
(c) DAP
(d) Complex fertilizer
