Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER –VI • EXAMINATION – WINTER 2015

Subject Code: 3360501 **Date: 19/12/2015**

Subject Name: FERTILIZER TECHNOLOGY

Time: 02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make Suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use of programmable & Communication aids are strictly prohibited.**
5. **Use of only simple calculator is permitted in Mathematics.**

Q.1		Answer any seven out of ten.	**14**
	1.	Write the classification of fertilizer with example.	
	2.	Explain the role essential elements for plant growth.	
	3.	Write the uses of fertilizers.	
	4.	Give any three fertilizers with nutrient content.	
	5.	Define complete fertilizer and give example.	
	6.	What is different between mixed fertilizer and composite fertilizer?	
	7.	What is catalytic partial oxidation?	
	8.	Define macro elements and micro elements.	
	9.	Write the uses of Ammonia.	
	10	Write the uses of Nitric acid.	
Q.2	(a)	Describe the physical, chemical properties of Ammonia.	**03**
		OR	
	(a)	Describe chemical, physical properties of Nitric acid.	**03**
	(b)	Write in brief on storage, handling and transportation of Ammonia.	**03**
		OR	
	(b)	Explain steam hydrocarbon reforming.	**03**
	(c)	Manufacturing of Nitric Acid by Pressure ammonia oxidation process	**04**
		OR	
	(c)	Explain the method of Linde Ammonia concept process.	**04**
	(d)	Explain process for Ammonia nitrate by prilling process.	**04**
		OR	
	(d)	Explain process for Ammonium sulpahte from ammonium carbonate and gypsum.	**04**
Q.3	(a)	Describe chemical, physical properties and uses of UREA.	**03**
		OR	
	(a)	Explain the process of phosphoric acid manufacturing by wet process with HCL leaching.	**03**
	(b)	Explain the manufacturing of NPK.	**03**
		OR	
	(b)	Explain the method for manufacturing of Urea montecatani process.	**03**
	(c)	Explain the method for manufacturing of Urea Toyo-Koatsu process.	**04**
		OR	

	(c)	Explain for phosphoric acid manufacturing by wet process with strong sulfuric acid leaching.	**04**
	(d)	Explain M.W.KELLOG'S process for Ammonia synthesis.	**04**
		OR	
	(d)	Describe process the manufacturing of CAN.	**04**
Q.4	(a)	Describe chemical, physical properties and uses of Phosphorus.	**03**
		OR	
	(a)	Describe chemical, physical properties and uses of Phosphoric acid	**03**
	(b)	Explain the preparation of Bio-fertilizer.	**04**
		OR	
	(b)	Write the physical, chemical properties and uses of potassium chloride.	**04**
	(c)	List out Micro nutrient for plant growth with their role.	**07**
Q.5	(a)	Describe the manufacturing of potassium chloride from sylvinite.	**04**
	(b)	Differentiate various Ammonia manufacturing process.	**04**
	(c)	Define Bio-fertilizer with its classification.	**03**
	(d)	State the advantages of Bio-fertilizer over synthetic fertilizer.	**03**

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