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**National Open University Of Nigeria**

**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**

**Faculty of Science**

 **October/November 2016 Examination**

**COURSE CODE:** CHM 417

**COURSE TITLE:** INDUSTRIAL CHEMICAL PROCESSES II

**CREDIT UNIT:** 2

**DURATION:** 2 HRS

**INSTRUCTION: *Answer any 4 questions***

1. (a) On what basis are inorganic fertilizers classified? 7 ½ mks

(b) Write on the preparation of Monoammonium phosphate. 10mks

1. (a) Describe the Stengel process. 11 ½ mks

 (b) List the requisites for the use of a compound as a fertilizer. 6mks

1. (a) Suppose a farmer is in dire need of Diammonium phosphate fertilizer, how will you prepare the fertilizer for him in your laboratory? 11mks

(b) In what ways are phosphorus fertilizers classified? Give examples. 6 ½ mks

1. (a) When is the Serpeck’s process necessary for the purification of Bauxite? 2mks

(b) Discuss the Hoope’s process for the purification of Aluminium. 15 ½ mks

1. (a) Describe briefly the three main physical methods for refining metals. 3mks

 (b) Explain the methods listed in 5(a) above and give appropriate examples. 14 ½ mks

1. (a) Whatis Calcination? 9 ½ mks

(b) With the aid of relevant chemical equations, show examples of ores in which the above is employed. 8mks