



NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
MARCH/APRIL 2016 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: CHM417 **CREDIT UNIT:** 2
COURSE TITLE: INDUSTRIAL CHEMICAL PROCESSES II

DURATION: 2 HRS

INSTRUCTION: Answer any 4 questions

1. (a) What are minerals? 9mks
(b) List the physical properties of minerals. 4mks
(c) Using Sphalerite as an example, what does heating and roasting involve in mineral processing? 6 ½ MKS
2. (a) Enumerate the types of furnaces used in metallurgical operations and identify their uses. 10mks
(b) What constitutes an ore gangue or matrix? 1 ½ mks
(c) With the aid of chemical equations, describe what happens in the blast furnace for the extraction of iron. 6mks
3. (a) Metals can be extracted by a universal method. How true is this statement? 4mks
(b) Explain in details the calcination process in the extraction of crude metal. 13 ½ mks
4. (a) Identify the two distinct steps in hydrometallurgy. 5mks
(b) Discuss briefly the characterization of cements. 12 ½ mks
5. (a) How is phosphoric acid produced? 11mks
(b) List (with chemical equations where necessary) the methods of preparing potassium sulphate. 6 ½ mks
6. (a) Show clearly in a schematic diagram, the membrane cell process. 12 ½ mks
(b) State 2 advantages and 2 demerits of the above process. 5mks