



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**DEPARTMENT OF APPLIED CHEMISTRY**  
**BACHELOR OF SCIENCE HONOURS DEGREE**  
**SUPPLEMENTARY EXAMINATIONS – AUGUST 2010**  
**PRINCIPLES OF PROCESS ENGINEERING – SCH 2218**  
**TIME: 3 HOURS**

**INSTRUCTIONS TO CANDIDATES**

Answer **ALL** questions, each question carries 20 marks.

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1. Discuss the factors that affect the choice of solvent in leaching.
2. With the aid of a diagram, describe and explain how a backward feed multiple effect evaporator work
3. Discuss in detail the diffusion and capillary theories of drying.
4. With the aid of diagram, explain how foodstuffs can be dried using freeze drying. Give five advantages of freeze drying.
5. A wet solid is dried from 25 percent moisture under constant drying conditions in 15 ks (4.17h). If the critical and the equilibrium moisture contents are 15 and 5 percent respectively, how long will it take to dry the solid from 30 to 8 percent moisture under the same conditions.

***END OF QUESTION PAPER!!!***