COURSE CODE: CHM 316
COURSE TITLE: Industrial Chemical Technology I
COURSE UNIT: 2
TIME: 2 Hours
INSTRUCTION: Answer question one and any other two questions.

QUESTION ONE

   a. Define heat transfer.   2mks
   b. Which of the fundamental heat transfer mode is applicable to solar power, and what attributes makes it applicable? 3mks
   c. Discuss mass transfer by Convection.   4mks
   d. State the Fick's rate equation, and itemize its parameters. What are its restrictions? 6mks
   e. Identify the five handles used to adjust the activities of distillation column. 5mks
   f. How are reactors used? 7mks
   g. Mention any three (3) variables on which the overall system design of a mixer depends. 3mks

QUESTION TWO

   a. What is thermal conduction? 10mks
   b. Explain in detail how molecules of liquid diffuse.   10mks

QUESTION THREE

   a. What relationship does viscosity have on diffusivity of liquids?   4mks
   b. List the basic knowledge needed for performing chemical conversion. 6mks
   c. Discuss on Transient Diffusion. 7mks
   d. What is a Bioreactor?   1 ½ mk
   e. What leads to glucose effect associated with the use of bioreactors? 1 ½ mk

QUESTION FOUR

   a. Explain the Knudsen diffusion or flow, and state its condition of occurrence. 10mks
   b. Write on the application of gravitational separation. 10mks

QUESTION FIVE

   a. As a chemist, what must you consider before selecting equipment for mixing liquids? 7mks
   b. Is Agitation synonymous to mixing? Explain. 7mks
   c. Explain how the principle of boiling is applied in separation by flashing method. 6mks