

EASTERN UNIVERSITY, SRI LANKA

NAL YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE –2014/2015

(May/June, 2017)

AE 4109 - System Concepts Applied to Postharvest Applications



Time: One hour
Answer all questions

01. (a) Give a brief note on the mechanical processes involved in the extraction of coconut oil.
- (b) Briefly explain the working principle of the following equipment used for the physical processing of agricultural products.
1. Plate and frame filter press
 2. Screw press
 3. Colloid mill
02. A supply of 50 kg of chicken at 6°C contained in a box is to be frozen to -18°C in a freezer. Determine the amount of heat that need to be removed. The container box is 1.5 kg and the specific heat of the box material is $14 \text{ kJ/kg}^{\circ}\text{C}$. The thermal properties of fresh and frozen chicken are constant. The entire water content of chicken freezes during the process. For chicken, the freezing temperature is -2.8°C , the latent heat of fusion is 247 kJ/kg . The specific heat is $3.32 \text{ kJ/kg}^{\circ}\text{C}$ above freezing and $1.77 \text{ kJ/kg}^{\circ}\text{C}$ below freezing.