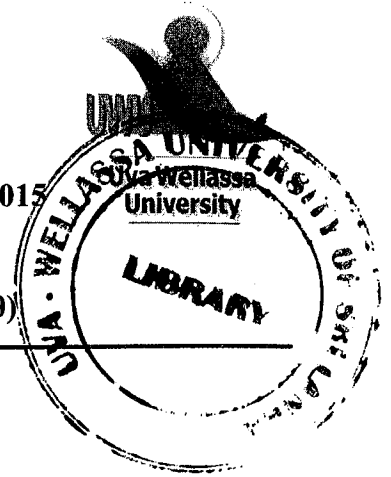


Uva Wellassa University
Faculty of Animal Science & Export Agriculture
Bachelor of Animal Science
BSc in Export Agriculture

End Semester Examination – September / October 2015
Year III - Semester I

Food and Biochemical Engineering (EAG 346 - 2/0)



Instructions

Answer **all** questions

No. of questions : Three (03)

No. of pages : Two (02)

Time : One (01) Hour

Total marks allocated : 60 %

PART III - ESSAY

Question 01

- a. Draw a labeled diagram to illustrate the essential features of a cabinet/tray dryer. (05 marks)
- b. Draw a graph to illustrate the drying rate against moisture content and explain the term "critical moisture content". (05 marks)
- c. A wet food product contains 90% water. After drying, it is found that 75% of original water has been removed.

Determine;

- (i) Mass of water removed per kilogram of wet food
- (ii) Composition (water and solid) of the dried food

(Assumption – steady state)

(10 marks)

Question 02

A food sample is going to be dried using an air sample having 30 °C dry bulb temperature and 40 % relative humidity. This air sample is first heated up to 50 °C dry bulb temperature before using it for drying. After drying the food sample, this air exits from the dryer under saturation (Use the given Psychrometric chart).

a) Determine the following conditions of the heated air which enters the dryer. (10 marks)

- i. Wet-bulb temperature
- ii. Humidity ratio
- iii. Specific volume
- iv. Enthalpy
- v. Sensible heat factor

b) Calculate the energy requirement for heating the air sample before drying. (10 marks)

Question 03

Write short notes on following

- a. Chromatography
- b. Adsorption
- c. Solvent extraction
- d. Stokes' law

(20 marks)