

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF FOOD SCIENCE AND TECHNOLOGY**

FOST 335: UNIT OPERATIONS IN FOOD PROCESSING

STREAMS: Y3 S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 31/3/2021

2.30 PM – 4.30 PM

INSTRUCTIONS:

- Answer ALL Questions in Section A and any other two Questions in Section B.

SECTION A

1. Evaporation is a process that is often used by the food technologist for removing excess water from liquid foodstuff.

(i) List the basic factors that affect the rate of evaporation. [5 Marks]

(ii) State two principal functions and four important practical considerations in evaporators. [5 Marks]

2. Enumerate four factors which influence rates of throughput of sieves. [4 Marks]

3. Give five examples of contact equilibrium separation processes. [5 Marks]

4. Explain the terms emulsion, emulsification and the factors which control stability of an emulsion. [10 Marks]

SECTION B

5. (a) Differentiate among the four groups of mechanical separations. [8 Marks]
- (b) Using a diagram explain the dough and paste mixers giving examples of various developments and the main driving principle. [12 Marks]
- 6.(a) Describe three categories of drying processes. [6 Marks]
- (b) By using a well labeled diagram of a two effect evaporator, discuss feeding of multiple effect evaporators. [14 Marks]
- 7.(a) Describe the operation of the following drying equipments;
- (i) Tray dryers, [3 Marks]
- (ii) Drum dryers, [3 Marks]
- (iii) Spray dryers, [3 Marks]
- (iv) Fluidized bed dryers, [3 Marks]
- (v) Spray dryers, [4 Marks]
- (vi) Freeze dryers. [4 Marks]
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