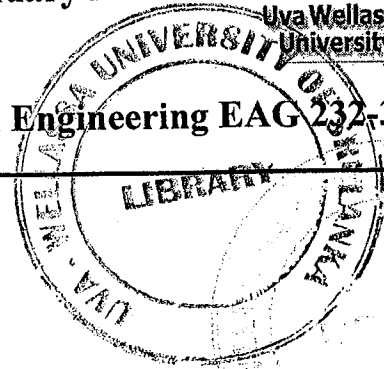




Fundamentals of Agricultural, Food and Biochemical Engineering EAG 232-3
Repeat



Instructions

Answer five questions only

No. of questions : Six (06)

No. of pages : Two (02)

Total marks allocated : 40/100

Time : Three hours (3hrs)

1.
 - a.
 - i. Define the term “Factor of Safety” of an engineering structure
 - ii. What are the **three (3)** major types of uncertainty that affect a structural design?
 - b.
 - i. List the steps in analysis of a truss.
 - ii. Briefly explain what is meant by **Static Determinacy and Stability** of a truss.

2. Write short notes on the following;
 - a. Concept of an air parcel
 - b. Dry and saturated lapse rates
 - c. Condensation nuclei
 - d. Ice Crystal Theory of rain formation

3. Write short notes on **two (2)** of the following topics
 - a. Production of citric acids
 - b. Single cell proteins
 - c. Immobilization of microbial cells
 - d. Membrane separation processes

4.

- a. Name **four (4)** types of bioreactors and briefly explain about **one (1)**.
- b. Define respiration quotient. Briefly explain its importance.
- c. Illustrate the microbial cell growth in a batch culture using a graph.
- d. List **two (2)** upstream processes and **two (2)** downstream processes.
- e. Using a flow chart explain the major steps in commercial penicillin production.

5.

- a. Briefly explain some possible bad effects of freezing.
- b. Outline the factors to be maintained in a refrigeration system to have a better quality product.
- c. List down pre-treatments that can be adopted to minimize the quality deterioration during refrigeration.

6.

- a. What is blanching and explain the purpose of blanching?
- b. What is meant by "**Commercial Sterilization of Food**"?
- c. Discuss the characteristics to be considered in selecting a container for In-Container Processing.