



**DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS 2014/2015**  
**FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE**  
**DEGREE IN BACHELOR OF SCIENCE IN FOOD SCIENCE AND**  
**TECHNOLOGY**

**FST 2404: FOOD PROCESS PLANT DESIGN**

**DATE: 15<sup>TH</sup> AUGUST 2014**

**TIME: 11.00AM-1.00PM**

**INSTRUCTION TO CANDIDATE: Answer ALL questions from Section A and any other TWO from Section B:**

**SECTION A: (30 MARKS)**

1. (a). For a product idea to lead to a successful venture, it must meet some requirements during economies of process design optimization. Explain **(4 Marks)**  
  
(b). Knowledge of the plant size is critical in making some decisions at the beginning of a plant design. Explain this statement **(6 Marks)**
2. Explain the developments that may lead to layout problems in a food process system **(10 Marks)**
3. (a). Explain the operations found in a cleaning-in-place (CIP) system of a food processing plant **(6 Marks)**  
  
(b). Explain the characteristics of suitable construction material food processing equipment's **(4 marks)**

**SECTION B: (40 Marks)**

4. According to the principle of flow, there are basic types of flow patterns that can be employed in designing fruits and vegetable processing layouts. With the help of diagrams explain the layouts **(20 Marks)**
5. Brookside Dairy LTD has put in place mechanisms that prevent contamination of yoghurt during processing. Using examples, discuss these mechanisms **(20 Marks)**
6. Discuss the categories of factors that influence any food plant layout **(20 Marks)**