

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

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

**FOST 336: FOOD PLANT DESIGN AND LAYOUT**

**STREAMS:**

**TIME: 2 HOURS**

**DAY/DATE: TUESDAY 6 /07/ 2021**

**8.30 AM – 10.30 AM**

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**INSTRUCTIONS:**

- Answer ALL questions in Section A and any TWO in Section B
- Do not write anything on the question paper. All rough work to be done on the answer booklet and crossed through.

**SECTION A: ANSWER ALL QUESTIONS (30 MARKS)**

**Question One**

- a) Explain the term “ process scheduling” [4 Marks]
- b) Explain how you would achieve proper production scheduling and briefly state the importance of this exercise. [6 Marks]

**Question Two**

How do the following utilities affect the design and layout of a food plant?

- a) Steam [5 Marks]
- b) Effluents [5 Marks]

**Question Three**

Describe the composite measure technique for making plant location decisions. [10 Marks]

**SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)**

**Question Four**

- a) Explain the advantages of a proper food plant layout [7 Marks]
- b) Discuss the situations that may give rise to the need of a food plant design. [7 Marks]
- c) Describe how you would perform a detailed technical analysis for a proper food plant design. [6 Marks]

**Question Five**

Consider a small-scale milk processing plant whose product portfolio includes fresh milk, Yoghurt and mala. Suggest practical guidelines for the design and construction of the plant with regards to

- a) Materials for construction of the plant [7 Marks]
- b) Illumination and ventilation of the plant [7 Marks]
- c) Cleaning and Sanitation of the plant [6 Marks]

**Question Six**

Discuss the following types of food plant layout.

- a) Product layout [7 Marks]
- b) Process layout [7 Marks]
- c) Cellular layout [6 Marks]

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