



1ST SEM. 2006/2007

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME : BACHELOR OF SCIENCE IN HOME
ECONOMICS [FOOD SCIENCE
NUTRITION AND TECHNOLOGY
OPTION] YEAR III**

COURSE CODE : FSNT 302

**TITLE OF PAPER : FOOD MACHINERY AND PLANT
DESIGN**

TIME ALLOWED : TWO (2) HOURS

**INSTRUCTIONS : ANSWER QUESTION ONE (1)
AND ANY OTHER (3) QUESTIONS**

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QUESTION 1 [COMPULSORY]

- a) Discuss the composition of the planning team and the role of each member in plant design and the means of communication between members

[10 marks]

- b) Discuss factors that will influence the geographic location and size of the site for a food processing plant.

[15 marks]

[Total = 25 marks]

QUESTION 2

Describe the design requirement for the following structures in a food processing plant.

- i. Grounds
- ii. Floors
- iii. Walls
- iv. Windows and sills
- v. Doors
- vi. Ventilation
- vii. Illumination
- viii. Hand washing facilities

[Total = 25 marks]

QUESTION 3

- a) Discuss the design requirement for food contact surfaces and materials of construction for food processing equipment.

[10 marks]

- b) Discuss general requirements in the fabrication of food processing equipments and equipment installation.

[15 marks]

[Total = 25 marks]

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QUESTION 4

- a) Discuss plant layout and the basic rules for establishing flow of work between work centers and sections.

[15 marks]

- b) Describe any two pieces of equipment used in the following unit operations.

- i. Cleaning
- ii. Size reduction of solid foods
- iii. Sorting by size
- iv. Peeling
- v. Centrifugation

[Total =25 marks]

QUESTION 5

Describe any two pieces of equipment used in each of the following unit operations

- vi. Filtration
- vii. Pasteurization
- viii. Sterilization
- ix. Mixing of viscous food material
- x. Size reduction of immiscible liquids

[Total = 25 marks]