



1ST SEM. 2008/2009

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UNIVERSITY OF SWAZILAND

SUPPLIMETARY EXAMINATION PAPER

PROGRAMME : **BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION AND
TECHNOLOGY
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 (2) QUESTIONS**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1 [COMPULSORY]

- a. Describe the composition of the planning team and the role of each member.
[12 marks]
- b. Discuss **five** factors that will determine the size of the plant site.
[10 marks]
- c. Discuss **three** factors that should be taken into consideration when selecting food processing equipment.
[3 marks]
- d. Describe the design requirements for the following structures in a food processing plant.
 - i. Floors
 - ii. Drains
 - iii. Ventilation
 - iv. Windows and sills
 - v. Illumination

[15 marks]
[Total = 40 marks]

QUESTION 2

- a. Discuss **five** design requirements for food contact surfaces
[10 marks]
- b. Discuss the composition and properties of stainless steel that makes it ideal for the fabrication of food contact surfaces.
[8 marks]
- c. Discuss **six** important points to consider in plate fabrication
[12 marks]

[Total = 30 marks]

QUESTION 3

- a. Describe the principle of operation and usage of the following equipment in the processing of food.
- i. Spray washer and air classifier
 - ii. Disc mill and high shear mixer
 - iii. Abrasion peeling and caustic peeling
 - iv. Disc bowl centrifuge and basket centrifuge
 - v. Fluidized bed drier and tunnel drier

[Total =30 marks]

QUESTION 4

- a. Describe the principle of operation and usage of the following equipment in the processing of food.
- i. Plate and frame filter press
 - ii. Belt press
 - iii. Continuous hydrostatic sterilizer
 - iv. Rotary cooker cooler
 - v. Z –Blade mixer and ribbon mixer

[20 marks]

[Total = 30 marks]
