



**1<sup>ST</sup> SEM. 2015/16**

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**UNIVERSITY OF SWAZILAND  
SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAM : 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 TWO (2) QUESTIONS. ILLUSTRATE  
YOUR ANSWERS WITH DIAGRAMS  
WHERE NEEDED**

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THE CHIEF INVIGILATOR**

**QUESTION 1 (COMPULSORY)**

- (a) State **three (3)** principles of hygienic design of food processing equipment. (15 Marks)
- (b) Discuss the importance of proper laying out a food processing plant. (15 Marks)
- (c) Compare and contrast gravitational settling and centrifugal separation. (10 Marks)

[TOTAL MARKS = 40]

**QUESTION 2**

- (a) Describe how a hydrostatic sterilizer works. (15 Marks)
- (b) Make a distinction between process system and auxiliary systems using examples. (15 Marks)

[TOTAL MARKS = 30]

**QUESTION 3**

- (a) Write short notes on the following:
- i. Process synthesis
  - ii. Vacuum dryer
  - iii. Attrition mills
  - iv. Operational requirements of food processing machines
- (4 x 5 = 20 Marks)
- (b) Describe **two (2)** types of heated surface dryers used in the food processing industry. (10 Marks)

[TOTAL MARKS = 30]

**QUESTION 4**

- (a) Outline the steps in process design. (14 Marks)
- (b) Define filtration processes and discuss **two (2)** types of filter designs. (16 Marks)

[TOTAL MARKS = 30]