



2ND SEM. 2017/18

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**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

**PROGRAM : BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION AND TECHNOLOGY
YEAR II**

COURSE CODE : FNS202

TITLE OF PAPER : FOOD MACHINERY AND PLANT DESIGN

TIME ALLOWED : TWO (2) HOURS

**INSTRUCTIONS : ANSWER QUESTION ONE (1) AND ANY
OTHER TWO (2) QUESTIONS**

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THE CHIEF INVIGILATOR**

QUESTION 1 (COMPULSORY)

- (a) State legal aspects in the design of a food processing plant. (14 Marks)
- (b) Describe a multi-use or multi-tank CIP system and identify components of the system. (11Marks)
- (c) State the requirements in food machinery design. (15 Marks)

[TOTAL MARKS = 40]

QUESTION 2

- (a) With the help of a sketch, describe a drying system for the production of powders from liquids. (10 Marks)
- (b) Explain the following: (4x5=20 Marks)
- i. Relationship chart
 - ii. Brown field
 - iii. Pressure mills
 - iv. Rising film evaporator

[TOTAL MARKS = 30]

QUESTION 3

- (a) With the help of a sketch, describe how a reel blancher works. (6 Marks)
- (b) With the aid of a sketch, describe a tunnel drying process. (12Marks)
- (c) Describe roll pre-sheeters and show different design with the aid of sketch. (12 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) Enumerate factors to be considered in selecting the location of food processing plant. (10 Marks)
- (b) Describe twin screw extruders: their function types and advantages. (10 Marks)
- (c) State the working principle of a rounder. (10 Marks)

[TOTAL MARKS = 30]