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2ND SEM. 2016/17

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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QUESTION 1 (COMPULSORY)

(a) State issues related to functional area design of a food processing plant. **(15 Marks)**

(b) Outline **three (3)** aspects/issues related to hygienic design of pumps and tanks. **(15 Marks)**

(c) Describe **four (4)** transport equipment used in food processing operations **(10 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

(a) Describe a drying system suitable for particulate (spherical) materials **(10 Marks)**

(b) Explain the following: **(4x5=20 Marks)**

i. Process synthesis
ii. CIP system
iii. Tubular centrifuge
iv. Cryogen freezers

[TOTAL MARKS = 30]

QUESTION 3

(a) With the help of a sketch, describe how a rotary drum filter works. **(10 Marks)**

(b) With the aid of a sketch, describe the spray drying process. **(12Marks)**

(c) Describe the characteristics of displacement and dynamic pumps. **(8 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

(a) With the help of a sketch, describe how a tunnel pasteurizer works. **(10 Marks)**

(b) Give the classification of fans with brief description of each. **(10 Marks)**

(c) With the help of a sketch, identify the component parts of a rounder. **(10 Marks)**

[TOTAL MARKS = 30]