



2ND SEM. 2013/14

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME : **BACHELOR OF SCIENCE IN
FOODSCIENCE, NUTRITION AND
TECHNOLOGY YEAR IV**

COURSE CODE : **FSNT 408**

TITLE OF PAPER : **FOOD PACKAGING &
TRANSPORTATION**

TIME ALLOWED : **TWO (2) HOURS**

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

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

QUESTION 1 (COMPULSORY)

- (a) Differentiate between shipping containers and retail containers. (2 Marks)
- (b) Explain **four (4)** functions of food packaging. (8 Marks)
- (c) Discuss **four (4)** climatic factors that can cause food deterioration during storage or transportation and how food packaging can slow down or prevent each cause. (8 Marks)
- (d) Give **two (2)** advantages and **one (1)** disadvantage of the following packaging materials:-
 - i. Aluminum
 - ii. Glass
 - iii. Paper and paperboard
- (e) Discuss the composition of glass. (9 Marks)
- (f) Explain the following terms:- (8 Marks)
 - i. Modified atmosphere packaging (1 marks)
 - ii. Controlled atmosphere packaging (2 marks)
 - iii. Active packaging (2 marks)

(5 Marks)

[TOTAL MARKS = 40]

QUESTION 2

- (a) What are the **two (2)** requirements for packages to qualify for the e-mark? (2 Marks)
- (b) Explain the process for manufacturing narrow neck and wide neck glass packaging. (10 Marks)
- (c) Give **One (1)** advantage and **two (2)** disadvantages of the following single films?
 - i. Low density polyethylene (LDPE)
 - ii. Polyimide (nylon)
 - iii. Ethylene vinyl alcohol (EVOH)
- (d) Explain how the following films are made:- (9 Marks)
 - iv. Aluminium coated film
 - v. Laminated film
 - vi. Coextrude film

(9 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- (a) Explain the following manufacturing processes for rigid and semi-rigid plastic containers:-
- i. Extrusion blow moulding (3 marks)
 - ii. Injection moulding (3 marks)
 - iii. Stretch blow moulding (4 marks)
- (10 Marks)**
- (b) Describe the following types of shipping containers:-
- i. Dry container
 - ii. Insulated container
 - iii. Reefer container
- (9 Marks)**
- (c) Explain **three (3)** functions of an in-transit refrigeration unit.
- (6 Marks)**
- (d) Explain the function of the additives, pigments and resin in paper manufacturing.
- (5 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

- (a) Explain the following processes for manufacturing 2 piece cans:-
- i. Draw-and-redraw (DRD)
 - ii. Draw-and-wall iron (DWI)
- (10 Marks)**
- (b) Discuss the sulphite process for manufacturing cellulose fibre from wood chips and also a process for manufacturing paper from the cellulose fibre.
- (15 Marks)**
- (c) List **five (5)** mandatory information that should appear on the label of pre-packed foods.
- (5 Marks)**

[TOTAL MARKS = 30]