

2ND SEM. 2017/18



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FSNT 408 (M)

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME : BACHELOR OF SCIENCE IN FOOD
SCIENCE, 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 giving **one (1)** example in each case. **(8 Marks)**
- (b) 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. **(16 Marks)**
- (c) Explain **four (4)** functions of food packaging. **(8 Marks)**
- (d) Discuss the composition of glass. **(8 Marks)**
- [TOTAL MARKS = 40]**

QUESTION 2

- (a) Explain the following terms:-
- i. Modified atmosphere packaging **(1 Mark)**
 - ii. Controlled atmosphere packaging **(2 Marks)**
 - iii. Active packaging **(2 Marks)**
- (b) What are the **two (2)** requirements for packages to qualify for the e-mark? **(6 Marks)**
- (c) Explain the process for manufacturing narrow neck and wide neck glass packaging **(10 Marks)**
- (d) Explain how the following films are made:-
- i. Aluminium coated film **(3 Marks)**
 - ii. Laminated film **(3 Marks)**
 - iii. Coextrude film **(3 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)
- (b) Describe the following types of shipping containers:
- i. Dry container (3 Marks)
 - ii. Insulated container (3 Marks)
 - iii. Reefer container (3 Marks)
- (c) Explain **three (3)** functions of an in-transit refrigeration unit. (6 Marks)
- (d) Explain the function 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) (5 Marks)
 - ii. Draw-and-wall iron (DWI) (5 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]
