

2ND SEM. 2012/13



PAGE 1 OF 3
FSNT 408 (S)

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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) State **five (5)** requirements of shipping containers **(10 Marks)**
- (b) State **four (4)** defects in packaging that could lead to microbial contamination of adequately processed package foods. **(8 Marks)**
- (c) Explain the process of making tin plate for manufacturing cans. **(10 Marks)**
- (d) List **two (2)** properties of the following lacquers used in cans and give **one (1)** food application:-
i. Epoxy-phenolic
ii. Vinyl compound **(6 Marks)**
- (e) Explain **three (3)** advantages of using aluminium for the manufacture of packaging material **(6 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

- (a) Explain the draw-and-wall iron (DWI) process for manufacturing 2 piece cans. **(6 Marks)**
- (b) Discuss the blow and blow process for manufacturing glass packaging. **(8 Marks)**
- (c) List **four (4)** disadvantages of glass packaging. **(8 Marks)**
- (d) Describe the **three (2)** types of refrigeration units that could be used on refrigerated truck. **(8 Marks)**

[TOTAL MARKS = 30]

QUESTION 3

- (a) Explain the following manufacturing processes for rigid and semi-rigid plastic containers:-
i. Blow moulding
ii. Extrusion blow moulding
iii. Stretch blow moulding (9 Marks)
- (b) State the **three (3)** rules which packers should comply with as set out in the Packer's rules. (6 Marks)
- (c) List **three (3)** advantages of paper/paperboard in food packaging. (6 Marks)
- (d) Describe the following types of ships and give an example of a food product they carry:-
i. Specialized refrigerated ship
ii. Convectional refrigerated ship
iii. Container ship (9 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) Explain how the following product characteristics affect logistic costs:-
i. Volume to weight ratio
ii. Value to weight ratio (6 Marks)
- (b) Explain the draw-and-redraw (DRD) process for manufacturing 2 piece cans. (5 Marks)
- (c) Explain the application of active packaging in the following areas and give **one (1)** example in each area:-
i. Gas control
ii. Moisture control
iii. Antimicrobial packaging (15 Marks)
- (d) Discuss the use of clip on mechanical refrigeration units. (4 Marks)

[TOTAL MARKS = 30]