



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING

DEPARTMENT OF FIBRE AND POLYMER MATERIALS ENGINEERING

FUNDAMENTALS AND PRINCIPLES OF PACKAGING

TFE 5209

Second Semester Examination Paper

March 2025

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: N/A

Examiner's Name: Mr. L.K. Ncube

**INSTRUCTIONS**

1. Answer **ALL** Questions in Section A and **ANY THREE** Questions in Section B.
2. The first fifteen minutes should be spent reading the question paper and making notes.
3. **Do not** open your answer sheet until told to do so.
4. Marks will be awarded for skill in appreciating the scope of questions, clarity of argument and conciseness of presentation as well as for the knowledge displayed by the candidate.

**MARK ALLOCATION**

QUESTION	MARKS
1	40
2	20
3	20
4	20
5	20

## **SECTION A**

(Answer **ALL** Questions- **TOTAL 40 Marks**)

### **QUESTION 1**

- a. Define the following:
- |                      |           |
|----------------------|-----------|
| (i) Packaging        | [2 Marks] |
| (ii) Package         | [2 Marks] |
| (iii) Packing        | [2 Marks] |
| (iv) Convenience     | [2 Marks] |
| (v) Shelf life       | [2 Marks] |
| (vi) Branding        | [2 Marks] |
| (vii) Psychographics | [2 Marks] |
- b. List any three examples for traditional and for modern packaging materials. [6 Marks]
- c. Using a product of your choice, discuss the stages you would exploit to design a packaging for it. [20 Marks]

## **SECTION B**

(Answer **ANY THREE** Questions- **TOTAL 60 Marks**)

### **QUESTION 2**

Give an account on the properties required of materials to qualify in food packaging application [20 Marks]

### **QUESTION 3**

Write short comprehensive notes under the following;

- |                                    |           |
|------------------------------------|-----------|
| a. Packaging lines                 | [5 Marks] |
| b. Printing of packaging materials | [5 Marks] |
| c. Packaging lifecycle             | [5 Marks] |
| d. Packaging trends                | [5 Marks] |

**QUESTION 4**

With the aid of a neat sketch, give an account of the packaging operation of form, fill and seal (FFS) machines. **[20 Marks]**

**QUESTION 5**

In the market today, product packaging is required to play the role of a “silent salesman”. Discuss this and give relevant examples. **[20 Marks]**

**END OF EXAMINATION QUESTION PAPER**