

1<sup>ST</sup> SEM. 2019/20

UNIVERSITY OF ESWATINI



SUPPLEMENTARY/RESIT EXAMINATION PAPER

**PROGRAMME:** BACHELOR OF SCIENCE IN FOOD SCIENCE, NUTRITION, AND  
TECHNOLOGY  
BACHELOR OF SCIENCE IN CONSUMER SCIENCE  
BACHELOR OF SCIENCE IN CONSUMER SCIENCE EDUCATION

**COURSE CODE:** FNS205

**TITLE OF PAPER:** FOOD SCIENCE

**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 the following terms and give an example for each.

- i. Gelatinization vs retrogradation
- ii. Fibrous vs globular proteins
- iii. Artificial sweeteners vs sugar alcohols

**(3x5=15 Marks)**

(b) When proteins are exposed to certain environments they undergo denaturation. Define denaturation and describe the denaturation process in detail. Also give examples of foods that are likely to undergo denaturation.

**(10x1=10 Marks)**

(c) Discuss the **three (3)** steps involved in REDOX reactions.

**(3x5=15 Marks)**

**[TOTAL MARKS=40]**

**QUESTION 2**

- i. What are carbohydrates? **(2 Marks)**
- ii. Where do carbohydrates originate or come from? **(2 Marks)**
- iii. Name the **two (2)** main types of carbohydrates and give food examples for each type. **(2 Marks)**
- iv. Discuss the classification of carbohydrates, providing detailed information on the different classes/subclasses, including definitions, characteristics, and food examples.

**(24 Marks)**

**[TOTAL MARKS=30]**

### QUESTION 3

(a) Discuss any **five (5)** uses of enzymes during food processing.

**(5x3=15 Marks)**

(b) Discuss **five (5)** factors that affect the physical characteristics of fats and oils.

**(5x3=15 Marks)**

**[TOTAL MARKS=30]**

### QUESTION 4

(a) Write short notes on the following:

- i. The structure of an amino acid molecule
- ii. Characteristics of an emulsifier and food examples
- iii. Unique features of functional food
- iv. Polysaccharides

**(4x5=20 Marks)**

(b) When meat is cooked, it undergoes numerous physical and chemical changes. Describe, in detail, chemical reactions that occur in meat during cooking.

**(2x5=10 Marks)**

**[TOTAL MARKS=30]**