



**UNIVERSITY OF ESWATINI**

**FACULTY OF HEALTH SCIENCES**

**B.Sc. IN ENVIRONMENTAL HEALTH AND FOOD  
SCIENCE**

**SEMESTER II**

**EXAM**

**MAY 2019**

**TITLE OF PAPER:** FOOD ANALYSIS

**COURSE CODE:** EHM 325

**DURATION:** 2 HOURS

**INSTRUCTIONS:**

1. READ THE QUESTIONS CAREFULLY.
2. ANSWER ANY 4 QUESTIONS.
3. EACH QUESTION CARRIES 25 MARKS. WHERE A QUESTION IS SUBDIVIDED INTO PARTS, THE MARK FOR EACH PART IS SHOWN IN BRACKETS.
4. NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
5. WRITE NEATLY AND CLEARLY
6. BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**SPECIAL REQUIREMENTS:** NONE

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.**

**QUESTION ONE**

- a) State the factors one would need to consider when choosing a moisture analysis method for a specific food product. [5 marks]
- b) Discuss the principles involved in the following methods of moisture determination:
  - i. Karl Fischer titration. [10 marks]
  - ii. Reflux distillation. [10 marks]

**[TOTAL: 25 marks]**

**QUESTION TWO**

- a) State the steps involved in fat autoxidation. [5 marks]
- b) Identify the method used in detecting fat autoxidation and explain what parameter it measures. [8 marks]
- c) In the determination of fatty acids in foods, it is necessary to convert them to esters. Explain why this is so. [12 marks]

**[TOTAL: 25 marks]**

**QUESTION THREE**

- a) Discuss the concept of column efficiency in chromatography. [15 marks]
- b) Explain the principle that leads to separation of solutes in Gas Chromatography. [5 marks]
- c) Distinguish an internal standard from external standard. [5 marks]

**[TOTAL: 25 marks]**

**QUESTION FOUR**

Discuss five specific interferences encountered in atomic absorption spectrophotometry and how these can be overcome. [25 marks]

**QUESTION FIVE**

- a) With aid of a labelled diagram, outline the Soxhlet method for fat determination, explaining the principles involved [15 marks].
- b) Outline the Gerber method for determining fat. State the functions of the ingredients used. [10 marks]

**[TOTAL: 25 marks]**

**END OF QUESTION PAPER**