



UNIVERSITY OF ESWATINI  
Faculty of Health Sciences  
Department of Environmental Health Science

DEGREE IN ENVIRONMENTAL HEALTH AND FOOD  
SCIENCE

**FINAL EXAMINATION PAPER 2021**

TITLE OF PAPER : FOOD TOXICOLOGY

COURSE CODE : EHS 450

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS :

- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
- : ANSWER **ANY FOUR** QUESTIONS.
- : EACH QUESTION **CARRIES 25** MARKS.
- : WRITE NEATLY & CLEARLY
- :
- : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

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

**QUESTION ONE**

- (a) Define the following term;
- |                     |          |
|---------------------|----------|
| (i) Mycotoxins,     | [1 Mark] |
| (ii) Xenobiotic,    | [1 Mark] |
| (iii) Phytotoxins,  | [1 Mark] |
| (iv) Toxic effects, | [1 Mark] |
| (v) Toxic symptoms  | [1 Mark] |
- (b) Briefly discuss the phenolic acids (Tannins) with respect to forms, sources and toxicity. [15 Marks]
- (c) What are glucosinolates [5 Marks]
- Total [25 Marks]**

**QUESTION TWO**

- (a) **Table 1.** Summary of selected chemical substance with LD50 mg/kg .b.w

Chemical substance	LD <sub>50</sub> mg/kg b.w.
Nicotine	1/1
WX (Chemical Warfare)	15/1000
Botulinum toxin	0.000001
Decis 2.5 EC	620
Temik 10G	9/10
Tetanus toxin	0.000002
Aflatoxin B1	7.2
Morphin	900
Dioxin	1/1000
Tityustoxin	9/1000

- (i) Arrange the chemical substances (Table 1) in the order of relative toxicity; starting with the most toxic chemical in decreasing order to the least toxic substance. [10 marks]
- (b) Discuss the dose-response relationship (curves). [15 Marks]
- Total [25 Marks]**

### QUESTION THREE

- (a) Briefly outline components of acute toxicological studies. [8 Marks]
- (b) Give an explanation on the site of damaging with respect to cell nucleus. [7 Marks]
- (c) Give an explanation on the site of damaging with respect to cell membrane. [10 Marks]
- Total [25 Marks]**

### QUESTION FOUR

- (a) Outline the types of transportation of chemical substances. [25 marks]
- Total [25 marks]**

### QUESTION FIVE

- (a) Briefly elaborate the role of cytochrome P450 enzymes in toxicokinetics. [5 Marks]
- (b) Outline the physic-chemical properties of chemical substances with respect to
- (i) molecular size and weight, [5 Marks]
  - (ii) ionization. [5 Marks]
- (c) Write short notes on effects of biological properties of organism in toxicity. [10 Marks]
- Total [25 Marks]**