



# Technical University of Mombasa

Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
FOOD TECHNOLOGY & QUALITY ASSURANCE TECHNOLOGY

**BSFQ 12S**

**AFS 4307 : FOOD TOXICOLOGY**

SEMESTER EXAMINATION

DECEMBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

## QUESTION ONE

a) Define the following terminologies

- |       |                   |                 |
|-------|-------------------|-----------------|
| (i)   | Biotransformation | <b>(2marks)</b> |
| (ii)  | Bioaccumulation   | <b>(2marks)</b> |
| (iii) | Allergens         | <b>(1mark)</b>  |
| (iv)  | Carcinogen        | <b>(1mark)</b>  |
| (v)   | Mutagen           | <b>(1mark)</b>  |
| (vi)  | Teratogen         | <b>(1mark)</b>  |

b) (i) Explain the factors that cause the kidney to be highly susceptible to toxicants.

**(4marks)**

(ii) Distinguish nephrotoxicity from Hepatotoxicity and give an example of a

- toxicant in each case. **(4marks)**
- c) (i) Discuss the factors that affect the growth and production of mycotoxins **(4marks)**
- (ii) Explain how mycotoxins production can be controlled / minimized **(4marks)**
- d) (i) Differentiate toxicoinfections from intoxications **(4marks)**
- (ii) List FOUR categories of foodborne diarrheagenic E coli strains according to virulence properties **(2marks)**

## QUESTION TWO

By use of relevant examples discuss natural plant toxins found in foods under the following headings

- (i) Canavanine **(4marks)**
- (ii) Cyanogenic Glycosides **(7marks)**
- (iii) Allyl isothiocyanates **(4marks)**
- (iv) Gossipol **(5marks)**

## QUESTION THREE

- a) Discuss factors that influence toxicity of compounds. **(12marks)**
- b) Draw a typical dose-response curve and show how it can be used to determine the safe intake of food additives and contaminants such as pesticides. **(8marks)**

## QUESTION FOUR

- a) (i) List THREE species of Aspergillus responsible for producing aflatoxins **(3marks)**
- (ii) Use examples of most commonly eaten mushrooms to discuss the toxins found in Edible mushrooms. **(6marks)**
- b) Outline the similarities between marine toxins and freshwater toxins. **(5marks)**
- c) Discuss botulism bacterial intoxication. **(6marks)**

## **QUESTION FIVE**

a) Define the following terms;

- (i) Food toxicology **(4marks)**
- (ii) Poison **(2marks)**
- (iii) Fetal alcohol syndrome **(2marks)**
- (iv) Nephrotoxicity **(2marks)**
- (v) Immunotoxicity **(2marks)**
- (vi) Mycotoxicosis **(1mark)**

b) State:

- (i) Clostridium perfringens characteristics **(3marks)**
- (ii) Symptoms associated Cl. perfrigen toxicoinfections **(3marks)**
- (iii) Diagnosis of Cl. perfrigen toxicoinfection **(1mark)**