

CHUKA



UNIVERSITY

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**EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY**

FOST 413: FOOD TOXICOLOGY

STREAMS: BSC (FOST)

TIME: 2 HOURS

DAY/DATE: MONDAY 10/12/2018

8.30 AM – 10.30 AM

INSTRUCTIONS:

- **Answer All Questions**
- **Do not write anything on the question paper**
- **Switch off your mobile phone**

Question One

- (a) Explain the meaning and significance of each of the following terms as used in food toxicology.
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|-------------------------|-----------|
| (i) Dose-response | [2 marks] |
| (ii) Median lethal dose | [2 marks] |
| (iii) Bioaccumulation | [2 marks] |
- (b) The management of toxic substances in foods necessitates assessing and understanding the risks involving them. Describe the various stages of risk assessment and their significance as relates to food toxicology. [6 marks]

Question Two

- (a) Describe the formation and occurrence of aflatoxins in foods. [10 marks]
- (b) With examples, discuss the processes or treatments that could be used to decontaminate aflatoxin contaminated foods/feeds, and highlight their merits and demerits. [10 marks]

Question Three

Describe the occurrence and toxicological effects associated with each of the following food toxicants, and the alternatives available for detoxification.

- (i) Glycosinolates [6 marks]
- (ii) Cyanogenic glycosides [6 marks]
- (iii) Glycoalkaloids [6 marks]

Question Four

The aims of food processing are to increase safety, quality and palatability. However, certain processing techniques applied to certain foods can result in formation of toxic residues. Giving examples, explain how food processing may result in harmful substances with reference to:

- (i) Heat treatment [10 marks]
 - (ii) Fermentation [10 marks]
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