



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR:

MASTER OF PUBLIC HEALTH

MPH/17S/YEAR 1/ SEMESTER 1

APH 5111: TOXICOLOGY IN PUBLIC HEALTH

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 3 HOURS

Instructions to Candidates

This paper consists of SIX questions

Answer question ONE (COMPULSORY) and any other THREE questions.

This paper consists of three printed pages.

Mobile phones are NOT allowed in the examination room

Question One

- a). Explain the meaning of dose-response in toxicology (6 marks)
- b). Outline with an example why combination of enzyme capability for detoxification and rate of detoxification can lead to selectivity in toxicity between different species (7 marks)
- c). Briefly explain the meaning following of the toxicological terms;
- i. Mechanistic toxicology (2 marks)
 - ii. Hazard (2 marks)
- d). Explain why children are particularly susceptible to environmental contaminants such as pesticides (5 marks)
- e). Distinguish between biological half-life time and bioavailability in toxicology (4 marks)
- f). Briefly describe Four major anatomic and physiological reasons why some toxicants do not enter central nervous system (CNS). (4 marks)

Question Two

Kenya is facing a lot health problems caused by food borne toxicants. Recently many people were facing starvation and some were even eating wild fruit as source of meal. There were reports in one of the daily newspapers that a section of community in Kenya ate contaminated maize which then later turned to be toxic due to toxin producing mould.

- a). Evaluate the role of this mold as environmental toxins impacting human health (15marks)
- b). Describe the role of metabolism in the toxicity of the mycotoxin (15 marks)

Question Three

Residents in **Owino-Uhuru** in Mombasa County were neighboring a company manufacturing what was not known. One morning many children were rushed to a nearby hospital where they were diagnosed with lead poisoning.

- a). Explain the kinetics of the metal in the body (15marks)
- b) Explain the toxic effects of lead in the human body (15marks)

Question Four

Fish farmers in Mabokoni situated in KwaleCounty face many challenges caused by bioaccumulations of chemicals along a generic food chain. It is assumed that the chemical bioaccumulate either from the water to the fish or from one trophic level to another determined by the concentration of chemical transferred from one compartment to another. Discuss (30marks)

Question Five

Discuss xenobiotic biotransformation and describe the enzymes involved in this process (30 marks)

Question six

Give detailed account of the toxic principles in plants (30marks)