



# MASENO UNIVERSITY

## UNIVERSITY EXAMINATIONS 2012/2013

### FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH (CITY CAMPUS & HOMA BAY CAMPUS)

#### **PHE 816: TOXICOLOGY AND ENVIRONMENTAL HEALTH**

*Date: 16<sup>th</sup> August, 2013*

*Time: 9.00 – 12.00 noon*

#### **GENERAL INSTRUCTIONS**

1. Write your University Registration Number on every booklet that you use.
2. Do not write your name on any papers you use.
3. This paper consists of four (4) Short Answer Question (SAQs) to be answered in Ninety (90) minutes and Four (4) out of Five (5) Long Essay Questions (LEQs) to be answered in 2 Hours (120) minutes.
4. The time allowed for this Paper is Three (3) hours.
5. The Questions are set out in Two (2) Sections A and B.
6. Read very carefully the additional instructions preceding each section.

## SECTION A

### SHORT ANSWER QUESTIONS (SAQ's) – 40 MARKS

#### Instructions:

1. This section has four (4) Questions
2. Answer ALL the four (4) Questions
3. Each question is ten (10) marks

#### SAQ 1.

- i) Define Environmental Toxicology -1 mark
- ii) Outline Origin and Classes of Toxins -3 marks
- iii) From ecological and toxicological points of view, define the term “disease” - 2marks
- iv) Write brief notes on the “holistic” concept of health and its relationship to toxicology - 4 Marks

#### SAQ 2.

In a short essay, discuss:

- i) Routes of Environmental Exposure -3 marks
- ii) Fundamental Rules of Toxicology - 3 Marks.
- iii) Outline risk factors relating to toxicity and expound on the special risk Factors for Children.- 4marks

#### SAQ 3.

- i) Define the term toxicity and using examples write brief notes outlining the relationship between the key terms relating to measures of toxicity. - 6 Marks
- ii) Define the term risk in relation to toxic exposure. -2 marks
- iii) State the determinants of risk. -2 Marks

#### SAQ 4.

- i) Briefly explain the relationship between Epidemiological Triad and the concept of Susceptibility in toxicology. - 4 marks
- ii) Define the term environmental health and using examples name the types of environmental health hazards. - 6 Marks

## SECTION B

### LONG ESSAY QUESTIONS (LEQ,s) - 60 MARKS.

#### INSTRUCTIONS

1. This Section has Five (5) Questions
2. Answer any Four (4) Questions from this Section.
3. Each question is 15 (Fifteen) marks.

#### LEQ 1

Outline the 7 Categories of Toxic substances briefly explaining the characteristics of each and detail some of the effects of each type of substance on organs. (15 Marks)

#### LEQ 2

While it is said that “The Dose Makes the Poison”, Risk assessment remains the key to healthy living. Using the example of “public health response to an outbreak”,

- i) Outline the key elements of risk assessment and management process
- ii) In terms of general principles of toxicological assessment and management, outline the standard toxicologic emergency procedures. (15 Marks)

#### LEQ 3

- i) Describe the general scheme of Toxicokinetics and Xenobiotic Metabolism (8 Marks)
- ii) Define the term Xenobiotics and; explain how Body Prevent the Actions of Xenobiotics. (7 Marks)

#### LEQ 4

- i) Using relevant examples explain the eight principles/concepts that are important in understanding and evaluating environmental health issues
- ii) Explain the relationship between concentration and exposure. (15 Marks)

#### LEQ 5

Discuss the concept pharmacodynamics in terms of the following principles detailing their significance to toxicokinetics and control of poisonous effects:

- i) dose-response relationship,
- ii) Relationship Between Therapeutic Index, Margin of Safety and Types of Exposure to Chemicals,
- iii) NOAEL Value and LOAEL Value and various Effects of More Than One Chemical on a target (15 Marks)

