



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE ENVIRONMENTAL SCIENCE
WITH INFORMATION TECHNOLOGY**

(MAIN CAMPUS)

NES 106: ENVIRONMENTAL HEALTH

Date: 25th July 2014

Time: 8.30 - 10.30 am

INSTRUCTIONS:

- Answer question ONE and ANY other TWO questions



NES 106: ENVIRONMENTAL HEALTH

Answer question ONE and any other TWO

1. (a) Differentiate Environmental health from Public health (3mks)

(b) State the post - mortem appearance of formaldehyde (CH_2O) which is the gaseous form of formalin (3mks)

(c). Mr. Obure who is Environmental Science student at Maseno University visited Sunspot Bar at Kondele Kisumu City on Friday 6th 2014 and observed the following. The volume of the bar was 500m^3 and had 50 smokers in it, each smoking two cigarettes per hour. An individual cigarette emits among other things, about 1.4 mg of formaldehyde (HCHO). Formaldehyde converts to carbon dioxide with a reaction rate coefficient $K = 0.4/\text{hr}$. Fresh air enters the bar at the rate of $1000\text{m}^3/\text{hr}$ and stale air leaves at the same rate.
 - i. Calculate the steady state concentration of the formaldehyde in the air experience by Mr. Obure, assuming complete mixing at 25°C and 1 atmosphere of pressure (14 mks)
 - ii. How does the result compare with the threshold for eye irritation of about 0.05ppm? (2 mk)
- (d) Suppose Angela weighing 70kg consumes an average of 6.5g of fish taken from Winam Gulf of Lake Victoria waters with concentration of Trichloroethylene (TCE) equal to 100ppb (0.1 mg/l). Calculate the (maximum) lifetime cancer risk that this exposure would cause. (8 mks)
2. In February 2014, two patient in Siaya Level four hospital were reported to have died after eating cassava which is known to have high concentration of Cyanide. Discuss the chemical effect of Cyanide which might have been the cause of death (20mks)
3. Discus Silicosis as an occupational diseases (20mks)
4. (a) "Alcohol provokes sexual desires but takes away performance". Explain the statement (4mks)
(b) Explain why Adolescence girls are more vulnerable to HIV/AIDS than the old mature women (6mks)
(c). What are the post-mortem appearance of methanol poisoning (5mks)
(d) . Describe symptoms of methanol poisoning (5mks)
5. Describe the biochemical effect of lead as a heavy metal (20mks)
6. Write short notes on
 - a. Aflatoxin (5mks)
 - b. Shigellosis (8mks)
 - c. Salmonella (3mks)
 - d. Botulinum (4 mks)