THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

REGINA PACIS INSTITUTE OF HEALTH SCIENCES

MAIN EXAMINATION

JANUARY – APRIL 2018 TRIMESTER

FACULTY OF SCIENCES

DEPARTMENT OF NURSING

REGULAR PROGRAMME

CHD 127: ENVIRONMENTAL HEALTH

Date: APRIL 2018	Duration: 2 Hours
INSTRUCTIONS: Answer ALL Questions	

SECTION A: SHORT ANSWER 10QUESTIONS: 30 MARKS

1. Define epidemiology and the context of its study **4 marks**

2. Diagnostic tests are important in disease control and treatment. Distinguish between

   i. Diagnostic test and screening test **2 marks**

   ii. True Positive and a false positive**2 marks**

   iii. Positive Predictive Value and Negative predictive value**2 mark**

3. Describe the difference between morbidity and mortality and the factors that influence the two as measures of disease(**4 marks**)

4. Distinguish the key features of incidence and prevalence (**6 marks**)

5. A sample of 200 individuals was used to determine the incidence of typhoid in Kajiado District for a period of 10 months. Assume that censored subjects did not experience the event of interest (typhoid)

n		er of new cases of typhoid

Use the above data to calculate cumulative incidence (CI) and incidence density rate (IDR). (**10 marks**)

6. Describe
   i. Herd immunity **2 marks**
   ii. Basic reproductive number **2 marks**
   iii. What is the application of herd immunity and basic reproductive number in undertaking public health action (**6 marks**)

SECTION B: LONG ANSWER QUESTIONS: Answer Any THREE Questions 60 Marks

7. a. *A new test is developed for the detection of carcinoma of the prostate. When it is tested in a group of 113 patients with prostatic cancer, 79 have a positive test. In a group of 217 individuals without prostatic cancer, 10 have a positive test.*

   i. *Calculate the specificity and sensitivity of the test above? 4 marks*

ii. *Calculate the positive predictive value and negative predictive value. 4 marks*

b. Assume that among the 100 people at risk of cholera in Rongai, 50 are men and 50 are women. If 15 men and 5 women develop cholera,

i. Calculate the relative risk of developing cholera in men, as compared with women.**4 marks**

ii. Calculate the odds ratio and interpret your results**6 marks**

iii. Distinguish between attributable risk and population attributable risk**2 marks**

8. a. In an effort to determine the possible association between lung cancer and exposure to asbestos, a scientist found 35 cases of lung cancer among 1,465 persons working in an asbestos factory. In addition, 12 cases of lung cancer cases were found among 1,788 persons not working in the asbestos factory.

i. Which study design was most appropriate for this scenario **1 marks**

ii. Briefly describe the main concepts of this study design   **6 marks**

iii. Use the presented data to compute the relevant measure of association for this study and interpret. **5 marks**

b. Describe the steps of outbreak investigation   **8 marks**

9. The true prevalence of HIV in a population of 25,000 people in region of Nyanza Kenya is 15%. Given a HIV screening test with a sensitivity of 98% and a specificity of 95%, answer the following questions:

i. Determine the total number of persons the screening test will designate as HIV positive and HIV negative**8 marks**

ii. Determine the proportion of False positive and False Negative subjects

2 marks

iii. Determine the Positive and Negative predictive values for the test**2 marks**

iv. Determine the level of agreement (kappa-value) between the screening test and the gold standard test **8 marks**

10. a). Describe the various aspects of descriptive epidemiology**5 marks**

b). Describe the possible reasons for changes in disease trends in a population

5 marks

c). Describe the steps undertaken when conducting a cohort study **10 marks**

END