JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF HEALTH SCIENCES
UNIVERSITY EXAMINATION FOR DEGREE OF MASTER PUBLIC HEALTH
1ST YEAR 2ND SEMESTER 2022/2023 ACADEMIC YEAR
KISUMU CAMPUS

COURSE CODE: HMP 5134

COURSE TITLE: EPIDEMIOLOGY AND CONTROL OF COMMUNICABLE DISEASES

EXAM VENUE: **STREAM:**

DATE: **EXAM SESSION:**

TIME: **3.00 HOURS**

Instructions:
1. Answer **Question ONE (compulsory)** and any other TWO questions.
2. Candidates MUST not to write anything on the question paper.
3. Candidates MUST hand in their answer booklets to the invigilator while in the examination room.

QUESTION 1

a. **Herd effect** and **herd immunity** are important concepts in vaccine epidemiology.

    i.   Define each of these terms, and explain TWO ways in which vaccination programmes can benefit from them. **(2 marks)**

    ii.   Explain what happens within a community if there is a drop in vaccination rates. Include an example. **(8 marks)**

b. Several phases occur in humans when they are infected with disease pathogens. Assume that an individual gets infected with a disease pathogen, develops symptoms but eventually recovers from the disease. Describe the phases in disease progression from infection to recovery. **(10 marks)**

Question 2

Measles is a highly infectious viral illness that can sometimes lead to serious complications and can be fatal in very rare cases. In the UK, measles is classified as a notifiable disease and is reported to Public Health England (PHE) as part of a passive surveillance system. Whilst cases of measles have dramatically fallen in the UK since1990, cases have recently risen with several outbreaks across the country. PHE is currently developing a UK-wide Measles Elimination strategy, which will set out the actions that need to be taken in order to control this important infectious disease.

a. In relation to the information provided above, define the terms: **(2 marks)**

    i.   Notifiable disease

    ii.   Passive surveillance system

b. Explain how an active surveillance system could be useful for ensuring an adequate response to any measles outbreak is made. **(8 marks)**

c. Surveillance for any infection is rarely 100% complete. Discuss THREE ways acceptance and reporting to a surveillance system within a country can be improved. **(10 marks)**

Question 3

a. Using an infectious disease as an example, explain the chain of disease transmission. **(10 marks)**

b. Using a disease as an example, describe the epidemiologic triangle and its application in public health **(10 marks)**

Question 4

a. What is the difference between an emergent infectious disease and a re-emerging infectious disease? In your answers, give two examples of an emergent and a re-emerging disease that have occurred in the recent past? **(5 marks)**

b. Using examples, describe at least five factors that contribute to the occurrence of emergent and re-emergent diseases? **(10 marks)**

c. Describe solutions for five factors that contribute to the occurrence of emergent and re-emergent diseases. **(5 marks)**