



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN POPULATION HEALTH

PPH 312: DYNAMICS OF INFECTIOUS DISEASES

DATE: 17/4/2019

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

- **This section has one question**
- **The question is compulsory**
- **The question is 30 marks**

QUESTION ONE (30 MARKS)

- a) Define the following terms as used in infectious diseases (3 marks)
- i) Herd immunity
 - ii) Pathogenicity
 - iii) Infectivity
- b) Differentiate between latent period and incubation period in infectious diseases (3 marks)
- c) Given the following data in population X of school children at risk of acquiring chicken pox:
Calculate the attack rate. (3 marks)
- i) Children exposed = 1522
 - ii) Children ill = 482
- d) Briefly explain the assumptions of compartmental models used in prediction of spread of infectious diseases (3 marks)

- e) State with examples modes of indirect transmission of infectious diseases (3 marks)
- f) State the special features that distinguishes the epidemiology of infectious diseases from non infectious diseases. (3 marks)
- g) Identify the types of reservoir in infectious diseases (3 marks)
- h) Giving examples, outline the outcomes of infectious diseases in a population (3 marks)
- i) Using examples, explain the types of rehabilitation in tertiary prevention of infectious diseases (3 marks)
- j) Explain the importance of mathematical modelling in infectious disease dynamics (3 marks)

SECTION B:

- **This Section Has Four (4) Questions**
- **Answer Any Two (2) Questions**
- **Each Question is 20 Marks)**

QUESTION TWO

- a) Discuss the ecological factors that influence occurrence of malaria (10 marks)
- b) Analyse the sociocultural aspects in your community that would jeopardize prevention and control of Ebola in presence of an index case. (10 marks)

QUESTION THREE

- a) Discuss the role of vaccination in prevention of infectious diseases (10 marks)
- b) "Kick polio out of Kenya" denoted efforts by the ministry of health over the years to eradicate the disease. Discuss in view of infectious disease control. (10 marks)

QUESTION FOUR

- a) Explain sources of data for the determinants of basic reproductive number in modelling of infectious diseases (10 marks)
- b) Chikungunya virus disease is the most recent of emerging diseases along the Kenya's Coastal Region. Discuss factors for its emergence. (10 marks)

QUESTION FIVE

- a) Using the epidemiologic criteria justify the use of VIA/VILLI as a screening intervention in Human papilloma virus infection. (10 marks)
- b) "The world is a global villange" discuss how this phenomena has influenced the control of infectious diseases. (10 marks)