



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

(CITY CAMPUS)

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE

HEH 400: APPLIED EPIDEMIOLOGY

DATE: Tuesday, 29th November 2016

TIME: 8.00 a.m. - 10.00 a.m.

INSTRUCTIONS:

SECTION A: Answer ALL Questions

1. Identify and explain of the health statistic that would be most useful in selecting risk factors to target for intervention in order to have the greatest health impact? (Assume the planned interventions are equally effective but resources are limited) (3 marks)
2. Briefly explain the roles of John Snow in the evolution of Epidemiology. (5 marks)
3. Kenyatta University is a community of 100,000 persons. During 2004, there were 1,000 deaths from all causes. All the cases of tuberculosis have been found, and they total 300: 200 males and 100 females. During 2004, there were 60 deaths from tuberculosis, 50 of them males.

Use these data for questions a through e.

- (a) Calculate the crude mortality rate. (1 mark)
- (b) Calculate the incidence rate of TB in 2004 (2 marks)
- (c) Calculate the proportionate mortality due to tuberculosis. (2 marks)
- (d) Calculate the case fatality rate for tuberculosis. (2 marks)
- (e) Calculate the cause specific mortality rate for tuberculosis. (2 marks)

4. A researcher follows 200 women who exercise regularly and 300 women who do not exercise regularly. After 30 years of follow-up, 20 of the women in the exercise group are diagnosed with osteoporosis while 30 women in the non-exercise group are diagnosed with osteoporosis.
- (a) Draw the 2X2 contingency table showing the disease on top and the exposure on the side. (3 marks)
- (b) Calculate the relative risk of developing osteoporosis between the two groups. (Show your work) (5 marks)

SECTION B: Answer Question FIVE (5) and Any other TWO

5. Demonstrate your understanding of the following epidemiological study designs:
- (a) Cohort studies (8 marks)
- (b) Experimental Study Designs (7 marks)
6. Discuss the Hill's fundamental principles in the evaluation of the causes of disease. (15 marks)
7. Discuss four main types of disease surveillance systems. (15 marks)
8. Citing pertinent examples, discuss levels of prevention in epidemiology. (15 marks)
9. Discuss the components of a chain of infection and outline the importance of understanding this chain in Public Health. (15 marks)



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UNIVERSITY EXAMINATIONS 2016/2017

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (ENVIRONMENTAL HEALTH)

PPH 221: IMMUNOLOGY OF ENVIRONMENTAL HEALTH DISEASES

DATE: TUESDAY 29TH NOVEMBER 2016

TIME: 8.00 A.M. - 10.00 A.M.

INSTRUCTIONS:

SECTION A: Answer ALL questions

1. (a) Using examples distinguish polymorph nuclear phagocytic and monoclear phagocytic immune systems. (4 marks)
- (b) Explain **four** essential features of antigenicity. (4 marks)
- (c) Explain **four** benefits of using live vaccine. (4 marks)
- (d) Using examples explain characteristics of two secondary organs of the immune system in human. (4 marks)
- (e) Explain the role played by interleukin-5 during parasite infection in children. (4 marks)

SECTION B: Answer question 2 and any other TWO questions

2. Discuss the characteristics and roles of the five main immunoglobulins in human body. (20 marks)
3. Discuss the following types of autoimmunity;
 - a) Physiological autoimmunity (7 marks)
 - b) Pathological autoimmunity (8 marks)
4. Describe **five** ways in which natural immunity protects human being from bacterial infection. (15 marks)
5. You have observed that after eating eggs a young child has scratched the skin and the skin has swollen after some minutes; discuss the mechanism of this reaction. (15 marks)