



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH 109: ECOLOGY AND HEALTH

DATE: 14/6/2021

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

This paper consists of two sections A and B

Section A is compulsory

Section B choose any two (2) questions

SECTION A: COMPULSORY (30 MARKS)

QUESTION ONE (30 MARKS)

- a) Briefly explain three (3) ways in which ecosystems are classified. (3 marks)
- b) Elephants are the most common species in African grasslands. The grasslands contain scattered woody plants, but they are kept in check by the uprooting activities of the elephants. Explain what would happen if the elephants are eliminated. (3 marks)
- c) Explain how biodiversity will vary with ecological succession. (3 marks)
- d) Giving relevant examples, differentiate between the following
 - i) Per capita population growth rate and carrying capacity
 - ii) Grazing and Detritus food chains (6 marks)
- e) Highlight three (3) ecological determinants of Health. (3 marks)
- f) “The climax stage of an ecosystem is not completely permanent”. Explain (3 marks)
- g) Identify three (3) characteristics of a food web (3 marks)
- h) Highlight three (3) ways in which the ecology can be protected (3 marks)
- i) “ The greater the number of alternative pathways in a food web, the more stable is the community of living things” Explain. (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS. EACH QUESTION CONTAINS 20 MARKS

QUESTION TWO (20 MARKS)

- a) The health and well being of humans cannot be separated from the natural environment. Discuss this statement from the perspective of a Public Health officer (10 marks)
- b) You are the Public Health Officer in charge of industries in Athi-river sub-county and have noticed an increase in environmental pollutants in the area. Discuss the possible health effects of these pollutants to the residents of Athi-river (10 marks)

QUESTION THREE (20 MARKS)

- a) Human activity is a major threat to the planet's biodiversity. Discuss the effects of unsustainable farming as a major threat to ecosystems biodiversity (10 marks)
- b) With the aid of diagrams discuss the major three types of natural selection (10 marks)

QUESTION FOUR (20 MARKS)

- a) With the aid of a diagram, describe the structure of an ecosystem (10 marks)
- b) An ecosystem has the following organisms-plants, sheep, rabbits, hyenas, snakes, vultures, leopards, giraffes, zebra, bacteria and fungi, lions. Develop three food chains and a food web that exist in this ecosystem (10 marks)

QUESTION FIVE (20 MARKS)

- a) Explain five (5) core functions of National Environmental Management Authority in Kenya. (10 marks)
- b) With an aid of well labeled diagrams describe and distinguish primary and secondary ecological succession. (10 marks)