



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH 210: WATER SUPPLY AND QUALITY CONTROL

DATE:

TIME:

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

Specific Instructions

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

QUESTION ONE (30 MARKS)

- a) Define the following terms (4 marks)
- Yield inventory
 - Abstraction
 - Demineralization
 - Intermediate access
- b) Outline the sources of conventional water supply (4 marks)
- c) Explain the measures to determine the quality and quantity of domestic water supply (4 marks)
- d) Highlight water sampling techniques and equipment. (4 marks)

- e) Describe the function of chlorination and impoundment screening in the water treatment process. (3 marks)
- f) Discuss the effects of water temperature on its physical properties and characteristics (4 marks)
- g) Outline the role of the carbonate equilibrium in water quality control (3 marks)
- h) Describe the measures taken by both the community and government to protect water sources. (4 marks)

SECTION B:

Specific Instructions

- **This Sections has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) As a public health officer in a water program, using examples discuss role of community involvement in water supply management . (10 marks)
- b) The Water Act of 2016 is not comprehensive in providing clean and sustainable water. Critique this statement. (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain the hydrological cycle and its impact on human health using examples (12 marks)
- b) As a public health officer in Machakos County, Discuss the design requirements that would ensure sufficient supply of water to residents (8 marks)

QUESTION FOUR (20 MARKS)

- a) A public health officer must be at the forefront of providing safe and sustainable water by understanding the parameters of water quality. Critically evaluate this statement. (12 marks)
- b) Compare and contrast the benefits and disadvantages of soft and hard water. (8 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the steps to follow to conduct water analysis and establish water's microbiological quality. (10 marks)
- b) Water pollution is a major cause of disease in the community. The effects range from discomfort to death. Discuss (10 marks)