



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL DIPLOMA

IN

ENVIRONMENTAL HEALTH

**MODULE: Physical Science for Environmental
Health Technicians**

PAPER NO: 605/23/M12

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Non-programmable Calculator

INSTRUCTIONS TO CANDIDATES

Answer any five (5) questions.

This paper consists of 3 printed pages.

QUESTION 1

- a) Define the following terms as used in physical science:
- i) Atom (2 marks)
 - ii) Isotope (2 marks)
 - iii) Mixture (2 marks)
 - iv) Acid (2 marks)
- b) i) State Hooke's law (2 marks)
- ii) For a light coiled spring which obeys Hooke's law, a tension of 200N would produce an extension of 80mm. The spring is hung vertically from a fixed support and a mass of 15kg is attached to the lower end. Calculate the extension. (6 marks)
- iii) State four (4) factors on which the methods employed in disposal of radioactive waste depend on. (4 marks)

QUESTION 2

- a) Draw and explain a flow chart to show how sewage can be converted into potable water. (16 marks)
- b) State four (4) gases that can cause the greenhouse effect. (4 marks)

QUESTION 3

- a) Discuss any five (5) safety precautions that an EHT should follow when using hydrochloric acid. (10 marks)
- b) i) Describe how soap is made from fats and oils (3 marks)
- ii) Explain how soap can dissolve a grease spot. (5 marks)
- iii) State any two (2) uses of water in a slaughter house. (2 marks)

QUESTION 4

- a) Incineration is a controversial method of waste disposal. Discuss this assertion giving relevant examples related to public health. (10 marks)
- b) Explain why the use of landfills as a method of waste disposal is being scaled back. (10 marks)

QUESTION 5

- a) Discuss five (5) occupational hazards relating to high sound levels. (15 marks)
- b) State five (5) protective measures that can be applied to reduce hazards associated with high sound levels. (5 marks)

QUESTION 6

- a)
 - i) State the Ohms law. (2 marks)
 - ii) Describe the formation of lightning (6 marks)
 - iii) As an EHT, what precautionary measures would you advise a Community against lightning. (4 marks)
- b) State four (4) differences between the magnetic properties of iron and steel. (4 marks)
- c) In a household circuit, several components are connected across two (2) common points.
 - i) Suggest two (2) advantages of connecting the components in this way. (2 marks)
 - ii) State two (2) dangers of electricity. (2 marks)

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