



**ZIMBABWE**

**MINISTRY OF HIGHER AND TERTIARY EDUCATION**

**HIGHER EDUCATION EXAMINATIONS COUNCIL  
(HEXCO)**

**NATIONAL CERTIFICATE**

**IN**

**ENVIRONMENTAL HEALTH AND MEAT INSPECTION**

**SUBJECT: Sanitation & Hygiene**

**PAPER NO: 342/S05**

**NOVEMBER/DECEMBER 2010 EXAMINATION**

**REQUIREMENTS**

**INSTRUCTIONS TO CANDIDATE**

1. Answer ALL questions in Section A.
2. Answer only THREE questions from Section B.

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*This paper consists of 3 printed pages.*

MS/2010

**SECTION A**

QUESTION 1

- a) Define the following terms:
- i) Sanitation. (2 marks)
  - ii) Landfill. (2 marks)
  - iii) Turbidity. (2 marks)
- b) Describe the hydrological cycle and how the activities of man have affected the cycle. (14 marks)

QUESTION 2

There are various methods of waste disposal. Explain the two methods given below. Indicate their advantages and disadvantages.

- a) Landfilling. (10 marks)
- b) Incineration. (10 marks)

**SECTION B**

QUESTION 3

- a) Define the following terms:
- i) Pollutant. (2 marks)
  - ii) Effluent. (2 marks)
- b) Explain the following as they are contained in the Environmental Management Act [Chapter 20:27].
- i) Water Pollution prohibitions. (6 marks)
  - ii) Effluent discharge. (4 marks)
- c) Outline and explain the procedures that are followed when collecting water from a borehole for bacteriological analysis. (6 marks)

QUESTION 4

- a) Sanitation Systems can be classified as onsite or offsite, dry or wet. Explain giving examples:
- i) Dry onsite system. (2 marks)
  - ii) Wet onsite system. (2 marks)

- b) With the aid of a diagram describe and explain how the Blair Ventilated Improved Pit (BVIP) latrine works. (10 marks)
- c) State three (3) advantages and three (3) disadvantages of BVIP latrine. (6 marks)

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QUESTION 5

- a) With the aid of a diagram, describe the operation of waste stabilisation ponds. (12 marks)
- b) State the advantages and disadvantages of waste stabilisation ponds. (8 marks)

*Flocculation maturation*

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QUESTION 6

- a) Define the following terms:
- i) Flocculation. (2 marks)
  - ii) Filtration. (2 marks)
  - iii) Sedimentation. (2 marks)
  - iv) Chlorination. (2 marks)
- b) Explain any four methods of household water treatment. (4 marks)
- c) Define water harvesting and explain any two water harvesting techniques giving examples. (6 marks)
- d) Explain two reasons for treating water. (2 marks)

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QUESTION 7

- a) Explain locally available resources that can be used to design facilities that promote household hygiene. (10 marks)
- b) Design a form that you would send to the laboratory together with a water sample for bacteriological analysis. (10 marks)

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