



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DIPLOMA IN ENVIRONMENTAL HEALTH SCIENCES
SUPPLEMENTARY EXAMINATION PAPER 2005

TITLE OF PAPER : EXCRETA AND SEWAGE MANAGEMENT

COURSE CODE : EHS 204

DURATION : 3 HOURS

MARKS : 100

INSTRUCTIONS :

- READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
- ANSWER ANY FIVE QUESTIONS
- EACH QUESTION CARRIES 25 MARKS.
- WRITE NEATLY AND CLEARLY
- NO PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM.
- BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

QUESTION ONE

1. Discuss the objectives of sewage treatment. (10 marks)
2. Explain five sewage treatment methods that are classified as primary treatment. (10 marks)

QUESTION TWO

1. What does population equivalent in sewage treatment mean? (5 marks)
2. Why should municipalities have to set standards for sewage discharge from industries into public sewers? (10 marks)
3. Define the term secondary treatment in sewage treatment. (5 marks)

QUESTION THREE

1. Under normal operation sewage treatment plant where are the following sewage constituents removed?
 - i. Suspended solids
 - ii. BOD₅
 - iii. Nutrients(3 marks)
2. What are the major bacterial activities in the following ponds in the waste stabilization ponds?
 - i. Anaerobic.
 - ii. Facultative.
 - iii. Maturation.(3 marks)
3. What are the depths of these ponds? (3 marks)
4. What is the normal cause of odour in the waste stabilization ponds, system of sewage treatment? How can this problem of odour be minimized? (5 marks)
5. Describe the algal bacteria symbiosis in sewage treatment. (6 marks)

QUESTION FOUR

Describe how you will test new drains before cover and use (20 marks)

QUESTION FIVE

Describe the constructional details and the operation of the ventilated improved double pit latrine. (20 marks)

QUESTION SIX

1. With the use of a sketch, show a trap and the depth of a seal. Explain its purpose. (10 marks)
2. Explain five ways by which a seal can be destroyed. (10 marks)