

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DIPLOMA IN ENVIRONMENTAL HEALTH SCIENCE

FINAL EXAMINATION PAPER 2012

TITLE OF PAPER	:	EXCRETA AND SEWAGE MANAGEMENT
COURSE CODE	:	EHS 204
DURATION	:	2 HOURS
MARKS	:	100 MARK
INSTRUCTIONS	:	READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
	:	ANSWER ALL FOUR QUESTIONS
	:	EACH QUESTION CARRIES 25 MARKS
	:	WRITE NEATLY & 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. Give four reasons for providing manholes in a drainage system. **(8 marks)**
2. Explain five ways by which defects can be prevented from a trap of a sanitary fitting during construction and operation. **(10 marks)**
3. Mention three methods that can be used for testing drain's efficiency **(3 marks)**
4. With the use of a sketch, show the depth of a seal. **(4 marks)**

QUESTION TWO

1. Name three types of sanitary fittings. **(3 marks)**
2. Describe two ways by which a water closet (W/C) can be flushed of its content **(10 marks)**
3. Mention three types of urinals that can be used in male toilets. **(6 marks)**
4. Describe two ways of ventilating drains and sewer lines. **(6 marks)**

QUESTION THREE

1. At what stage of sewage treatment should algal growth be encouraged and for what benefit to the treatment **(5 marks)**
2. Explain five causes of odour in a trickling filter wastewater treatment plant? How can this problem of odour be minimized? **(10 marks)**
3. Explain processes that take place in primary and secondary sewage treatment. **(10 marks)**

QUESTION FOUR

1. Using a sketch, explain the process of activated sludge that treats sewage. **(15 marks)**
2. What are the five advantages of using activated sludge to treat sewage? **(10 marks)**

QUESTION FIVE

1. How do stabilization ponds treat sewage? **(10 marks)**
2. What are the advantages and disadvantages of using stabilization ponds to treat sewage? **(10 marks)**

3. Draw a rough sketch to demonstrate your understanding of the linkages that exist in a drainage system up to a soakage pit and a sewage treatment plant respectively (5 marks)