



**UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION PAPER**

**PROGRAMME:** BSC ABE 4

**COURSE CODE:** ABE406

**TITLE OF PAPER:** SANITATION AND WASTE MANAGEMENT

**TIME ALLOWED:** TWO (2) HOURS

**SPECIAL MATERIAL REQUIRED:** NONE

**INSTRUCTIONS:** ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS.

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR**

**SECTION A. COMPULSORY QUESTION****Question One**

- a. Describe the characteristics of any two types of the pathogenic microorganisms commonly transmitted through contact or consumption of contaminated water.  
**20 marks**
- b. Discuss two of the elements of a functional solid waste management system.  
**10 marks**
- c. Discuss at least two roles of the local government when setting up a waste management system.  
**10 marks**  
**(40 marks)**

**SECTION B. ANSWER ANY TWO QUESTIONS****Question Two**

- a. Describe two environmental conditions that you would consider when choosing a site for construction of a septic tank.  
**10 marks**
- b. Describe how a primary water treatment process differs from a secondary water treatment process?  
**10 marks**
- c. Discuss at least two benefits anaerobic digestion (biogas production) in both waste and environmental management.  
**10 marks**  
**(30 marks)**

**Question Three**

- a. Discuss the advantages and disadvantages of a sanitary landfill and use examples where possible.  
**20 marks**
- b. Explain the meaning of the following terms as used in sanitation and waste Management, give examples where applicable;
- |     |                             |    |                 |
|-----|-----------------------------|----|-----------------|
| i.  | Integrated waste management | /5 |                 |
| ii. | Organic Loading Rate (OLR)  | /5 | <b>10 marks</b> |
- (30 marks)**

**Question Four**

- a. Discuss the importance of house hold water treatment and one of the methods that may be used. **10 marks**
- b. Describe how you would manage a landfill site making sure that you minimize accidents associated with gas emissions? **10 marks**
- c. Explain what food sanitation is and what are standards, including their importance? **10 marks**
- (30 marks)**