



**UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION PAPER**

**PROGRAMME:** BSC ABE 4 AND BSC FSNT4

**COURSE CODE:** ABE 405

**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. Explain the difference of sewage treatment in a septic tank and an imhoff tank?  
10 marks
- b. Explain the meaning of sustainable sanitation and the importance of this concept in sanitation and waste management  
10 marks
- c. Discuss two methods of to minimising waste generation that may be used by a local government.  
10 marks
- d. Explain the meaning of food sanitation and the measures that have been taken to eliminate the risk associated with food handling.  
10 marks

**[40 marks]****SECTION B. ANSWER ANY TWO QUESTIONS****Question Two**

- a. Poor sanitation is a common problem in most developing countries in the world. Discuss at least two causes for the condition and the related impacts.  
20 marks
- b. Using examples, describe three forms of resources recovery.  
10 marks

**[30 marks]****Question Three**

- a. Explain what biogas is and why is it important in both waste and environmental management?  
10 marks
- a. Calculate the volume of a digester in cubic meters if the digester is 35 ft. in diameter, 12 ft. SWD and a cone depth of 6 feet. Present answers in m<sup>3</sup>  
10 marks
- b. Discuss the social, economic an environmental benefits of using biogas.  
15 marks

**[30 marks]**

**Question Four**

a. Write the meaning of the following terms as used in sanitation and waste management;

- i. Improved sanitation /5
- ii. Onsite-sanitation /5
- iii. Basic sanitation /5

**15 marks**

b. Explain how a land fill is different from a dump site? Include the elements of environmental protection in your answer.

**15 marks**

**[30 marks]**