



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

**PROGRAMME: BSC ANIMAL SCIENCE YEAR 4
BSC LAND AND WATER
MANAGEMENT YEAR 4.**

COURSE CODE: LUM 405

TITLE OF PAPER: SANITATION AND WASTE MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: CALCULATOR

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

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GRANTED BY THE CHIEF INVIGILATOR**

SECTION ONE: COMPULSORY

QUESTION ONE

- (a) Briefly explain the circumstances under which an item is regarded as waste.
(5 Marks)
- (b) Giving examples, list five (5) major types of waste found in Swaziland and their sources.
(10 Marks)
- (c) Landfilling is the predominant solid waste management practice in most countries in the world. However, this method is not widely used in most developing nations mainly because of lack of capacity in the design, construction and management of landfills.
- a. Give a general description of a landfill design structure giving emphasis on the choice of construction material.
(10 Marks)
 - b. Discuss the environmental problems associated with landfills.
(15 Marks)

SECTION II: ANSWER ANY TWO QUESTIONS

QUESTION TWO

- (a) Present an editorial on the use and handling of packaging materials (plastic bags, beverage bottles, cans etc) by consumers in Swaziland. **(10 Marks)**
- (b) Used tyres and engine oils, from the motor vehicle industry, are a nuisance to the environment in the country. List; in point form, how these items can be best handled to prevent environmental pollution. **(10 Marks)**
- (c) What are special wastes and why are they of major interest to environmentalists? Use examples applicable in the SADC region in your answer. **(10 Marks)**

QUESTION THREE

- (a) What do you understand by waste management hierarchy? **(10 Marks)**
- (b) Waste management training **MUST** be offered to every student in the University of Swaziland. Discuss either for or against this statement. **(10 Marks)**
- (c) Discuss nitrification processes in composting and outline the conditions that are required for this process to happen. **(10 Marks)**

QUESTION FOUR

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- (a) State the differences between a wet and dry pit latrine. Under what circumstances would you choose to construct a dry pit latrine? **(10 Marks)**
- (b) A local school, with an enrolment of 500 pupils, approaches you for advice on where to site a ventilated improved pit latrine (VIP) for use by the school children. What key issues would you take into consideration and what volume of pit would you recommend? **(20 Marks)**