

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences
Department of Environmental Health Sciences

Diploma in Environmental Health Sciences

MAIN EXAMINATION PAPER May 2011

TITLE OF PAPER : SOLID WASTE MANAGEMENT

COURSE CODE : EHS:205

DURATION : 2 HOURS

MARKS : 75

INSTRUCTIONS : THERE ARE 3 QUESTIONS IN THIS EXAM.

: ANSWER ALL THE QUESTIONS

EACH QUESTION CARRIES 25 MARKS

: NO PAPER SHOULD BE BROUGHT IN TO OR OUT OF THE
EXAMINATION ROOM

QUESTION 1 (25 MARKS)

- A. Define the following terms:
i) Under fire combustion ii) Over fire combustion iii) Heterotrophs iv) Autotrophs
v) Methanogen vi) Acidogen vii) Secure landfill viii) Landfill liners.....[6 Marks]
- B. Describe i) Physical ii) Biological ii) Chemical transformation of solid waste.....[7 Marks]
- C. Discuss the factors that influence the frequency of collection of solid waste.....[6 Marks]
- D. Suggest a system of solid waste collection (collection type and frequency) for the following establishments:
i) Detached dwellings ii) Multi-family apartments iii) Single room dwellings
iv) Markets.....[6 Marks]

QUESTION 2 (25 MARKS)

- A. Describe the reuse and recycle opportunities of glass.....[6 Marks]
- B. Describe major uses of recycled paper-indicating the different uses to which a recycled paper may be applied for.....[9 Marks]
- C. Write the general equation for the aerobic transformation of solid waste.....[5 Marks]
- D. Write the general equation for the anaerobic transformation of solid wastes.....[5 Marks]

QUESTION 3 (25 MARKS)

- A. Describe five types of air pollutants from incineration and their method of control....[6 Marks]

- B. Describe how the following five design factors affect the efficiency of aerobic composting processes :
 - i) Particle size ii) Moisture content iii) Temperature iv) Oxygen
 - v) Carbon to Nitrogen ratio.....[7 Marks]

- C. Describe the reactions that occur in a sanitary landfill.....[6 Marks]

- D. List the important factors to be looked at in landfill siting considerations.....[6Marks]