



# Technical University of Mombasa

Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
TECHNOLOGY IN APPLIED CHEMISTRY  
**BTAC11MEVE**

## **ACH 4410: GREEN CHEMISTRY**

SEMESTER EXAMINATION

DECEMBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

### **QUESTION ONE**

- a) (i) State the goal of green chemistry. **(5 marks)**
- (ii) Explain the statement “dilution is the solution to pollution,” stating its relevance at present **(5 marks)**
- (iii) Green chemistry is difference from traditional chemistry. What brings about this difference? **(5 marks)**
- b) (i) State the basic factors involved in calculating risk and show how risk has been minimized traditionally **(4 marks)**
- (ii) Give the limitations to risk reduction **(4 marks)**
- (iii) State how green chemistry is addressing (b) ii) above **(7 marks)**

## QUESTION TWO

- a) Giving some examples, explain why green chemistry is gaining importance **(15 marks)**
- b) State the FIVE tools of green chemistry **(5 marks)**

## QUESTION THREE

Present and briefly explain the established specific aspects of green chemistry **(20 marks)**

## QUESTION FOUR

- a) Energy sources are categorized as renewable and non-renewable
  - (i) Give FOUR sources of each category **(8 marks)**
  - (ii) State TWO disadvantages of each of these categories **(4 marks)**
- b) (i) With some examples, state what green power is. **(5 marks)**
  - (ii) With some explanations, give TWO examples of future sources of renewable energy. **(3 marks)**

## QUESTION FIVE

- a) Green chemistry promotes the use of alternative solvents
  - (i) Give FOUR examples of such solvents **(6 marks)**
  - (ii) For green chemistry, what would be your selection criteria for a reaction media? **(5 marks)**
  - (iii) Discuss 'water' as a solvent in green chemistry **(9 marks)**