



**TECHNICAL UNIVERSITY OF MOMBASA**  
**FACULTY OF APPLIED AND HEALTH SCIENCES**  
**DEPARTMENT OF PURE & APPLIED SCIENCES**

**UNIVERSITY EXAMINATION FOR:**

**BTAC 12S AND 13M**

**ACH 4411: BIOANALYTIC II**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Select Month 2016

**Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

**Do not write on the question paper.**

**Question ONE**

- (a) Describe the term pH 2 marks
- (b) Outline four characteristics of an ideal miniaturized analytical system 4 marks
- (c) Outline six disadvantages of glass thermometers 3 marks
- (d) Explain the following terms
- i. Homogenization 2 marks
  - ii. Ruggedness 3 marks
  - iii. reproducibility 3 marks
  - iv. InfraRed (IR) spectroscopy 3 marks
- (e) Differentiate between Ultrasonic extraction method and piezo electric types 5 marks
- (f) Describe the Thermal Desorption of air sample 3 marks
- (g) Describe the analytical protocol 2 marks

**Question TWO**

- a) Explain the following methods of sample preparation

- i) Solid phase extraction 5 marks
- ii) Liquid-liquid extraction 5 marks
- b) Discuss Pre analytical Phase within the laboratory 10 marks

**Question THREE**

- a) Explain the following types of Sensor Transducers;
  - i) Pressure transducers 5 marks
  - ii) Electrical pressure transducers 5 marks
  
- b) Explain the following physical phenomenon ;
  - i) Bacterial Bioluminescence 5 marks
  - ii) Luminol Chemiluminescence 5marks

**Question FOUR**

- a) Discuss Standard Operating Procedures (SOPs) in bioanalysis 10 marks
- b) Explain the effects of Stock and Solutions pH Adjustment on Buffer 10 marks

**Question FIVE**

Discuss the analytical plan and analytical process in bioanalysis 20 marks