Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN ANALYTICAL CHEMISTRY
(DAC 11M)

ABT 2308 : BIOCHEMICAL TECHNIQUE OF ANALYSIS

SEMESTER: EXAMINATIONS

SERIES: DECEMBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper
- *Answer booklet*

This paper consists of *FIVE* questions.
Answer Question **ONE (compulsory)** and any other **TWO** questions
This paper consists of 2 PRINTED pages

Question ONE

(a) Distinguish between lyases and ligase **(4marks)**

(b) Define the following term

    (i)   Buffer solution **(2marks)**

    (ii)   Enzyme **(2marks)**

(c) Calculate the pH of a solution that has $[H^+]$ of 1×10^{-5} mol/l **(4marks)**

(d) State FOUR disadvantage of protein concentration by precipitation technique **(4marks)**

(e) State any FOUR ligands, used in affinity chromatomply **(4marks)**

(f) State any SIX limitation of Beer-Lambert laws **(6marks)**

(g) What are the symptoms of aged measuring electrode **(4marks)**

Question TWO

(a) State the three major buffer found in human body **(3marks)**

(b) Briefly explain the role of buffer mentioned above **(12marks)**

Question THREE

(a) Describe the principle and procedure of Affinity chromatography **(12marks)**

(b) What are suicidal inhibitor? Give example **(3marks)**

Question FOUR

(a) Buffer solution is made by adding 328g CH_3COONa salt to Idm^3 of 0.01m CH_3COOH what is the pH of the buffer when Ka of CH_3COOH is 1.7×10^{-5} mol^{-1}dm^{-3} **(9marks)**

(b) If 25ml of 0.1mHCl solution is diluted to 100ml with distilled water calculate pH of resulting solution **(6marks)**

Question FIVE

(a) Explain how the following agent induces protein precipitation

    (i)   Neutral salt **(4marks)**

    (ii)   Organic solvent **(4marks)**

    (iii)   High molecular weight polymer **(4marks)**

(b) Explain why biospecific Affinity chromatography is not commonly used in industries **(3marks)**