THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A constituent of JKUAT)

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY

BIMBT 10 M

SBH 2301 : BASIC METABOLISM III

SPECIAL/SUPPLEMENTARY EXAMINATION

FEBRUARY 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) Differentiate between ;

   i)   Glucogenic and ketogenic amino acids giving examples.   **(2marks)**

   ii)   Primary and secondary proteins   **(2marks)**

   iii)   Positive and negative nitrogen balance   **(2marks)**

b) With a specific example outline the process of transamination.   **(3marks)**

c) Highlight the salvage pathway in biosynthesis of purines nucleotides. **(4marks)**

d) How are proteins digested?   **(3marks)**

e) Write an overall reaction equation in which urea is formed.   **(3marks)**

f) Name THREE end products of catabolism of pyrimidines nucleotides **(3marks)**

g) Describe the secondary structure of a nucleic acid.   **(2marks)**

h) State FOUR functions of nucleotides   **(2marks)**

i) Outline the hydrolysis of polynucleotides   **(4marks)**

Question TWO

Using a clearly outlined pathway describe de novo synthesis of purines nucleotides

(20marks)

Question THREE

Describe the metabolic fate of nitrogen from deamination of amino acids in humans. Show the pathway reactions **(20marks)**

Question FOUR

Give a descriptive account of amino acids catabolism clearly stating their end products.

(20marks)

Question FIVE

Describe the biosynthesis of amino acids from glycolytic and citric acid cycle intermediates in bacteria. **(20marks)**