



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
BTAC 12J

ABT 4204: FUNDAMENTALS OF METABOLISM

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

SECTION A

QUESTION ONE

- a) Define the following terms **(10marks)**
- (i) Catabolism
 - (ii) Metabolic disorder
 - (iii) B-oxidation
 - (iv) Ketogenesis
 - (v) Glucogenic amino acids
- b) Name and briefly discuss the **TWO** phases in glycolytic pathway **(4marks)**
- c) With examples state 3 functions of lipids **(3marks)**
- d) Discuss the carnitine shuttle process during fatty acid degradation **(6marks)**
- e) Name the 2 phases and their products in the pentose phosphate pathway **(4marks)**

- f) Outline how the glyoxylate cycle differs from the TCA Cycle **(3marks)**

SECTION B (Answer any TWO questions)

QUESTION TWO

Describe the metabolic reactions and the enzymes involved in the catabolism of glucose during glycolysis **(20marks)**

QUESTION THREE

- a) Clearly illustrate and discuss the gluconeogenesis pathway **(10marks)**
b) Discuss in details the **THREE** bypass reactions in gluconeogenesis and how they differ from those in glycolysis. **(8marks)**
c) Outline the activation of gluconeogenesis pathway. **(2marks)**

QUESTION FOUR

Discuss the metabolic reaction and enzymes involved in fatty acid synthesis **(20marks)**

QUESTION FIVE

With examples state and explain the **FIVE** functions of proteins. **(20marks)**