



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN MICROBIOLOGY AND

BIOTECHNOLOGY

AAB 4305: BASIC METABOLISM III

END OF SEMESTER EXAMINATION

SERIES: Select series Pick year

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

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) Define the following terms and give examples/ uses of each

(i) High energy molecules/ compounds **(2 marks)**

(ii) Endergonic reactions and Exergonic reactions **(2 marks)**

(iii) Indican **(2 marks)**

(iv) Allopurinol

(2 marks)

(v) Ketogenic amino acids and Glucogenic amino acids

(2 marks)

b) (i) State four sources of Ammonia in the body.

(2 marks)

(ii) Outline the disorders of Ammonia metabolism

(3 marks)

c) (i) Outline the reaction of Urea cycle (3 marks)

(ii) Name the sources of carbon and nitrogen atoms in urea formation. **(2 marks)**

d) (i) Show how Serine and Threonine are glucogenic. (2 marks)

(ii) Illustrate the formation of hydroxyproline and state the significance of this reaction. **(3 marks)**

e) Name five inhibitors of Pyrimethamine nucleotide synthesis and their uses. (5 marks)

Question TWO

Describe the following amino acid reactions with suitable examples and their respective significances

(i) Transamination reactions **(4 marks)**

(ii) Decarboxylation reactions **(4 marks)**

(iii) Deamination reactions **(4 marks)**

(iv) Transmethylation reactions **(4 marks)**

(v) Transsulfuration reactions **(4 marks)**

Question THREE

Discuss the metabolism of Glycine, and name the associated disorders. **(20 marks)**

Question FOUR

Describe the catabolism of branched chain amino acids and name the associated disorders.

(20 marks)

Question FIVE

Discuss the degradation of Purine nucleotide and disorders involving degradation of purine nucleotide. **(20 marks)**