



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE FOOD TECHNOLOGY AND QUALITY ASSURANCE

BACHELOR OF SCIENCE IN ENVIRONMENTAL PUBLIC HEALTH

ABT4201: BIOCHEMISTRY 1

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

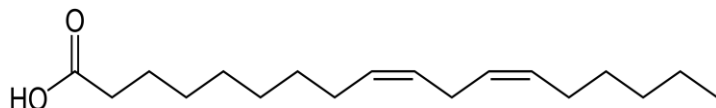
-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- Draw and name the structure of trehalose (2mks)
- What type of linkage that connects the two sugars in above (1mks)
- Cellulose and alpha amylose are both unbranched homopolysaccharides found in plants. How does the linkage between the glucose monomers in each polymer change its structure and its function? (3mks)
- Give the alpha numeric name and common name of the following fatty acid (2mks)



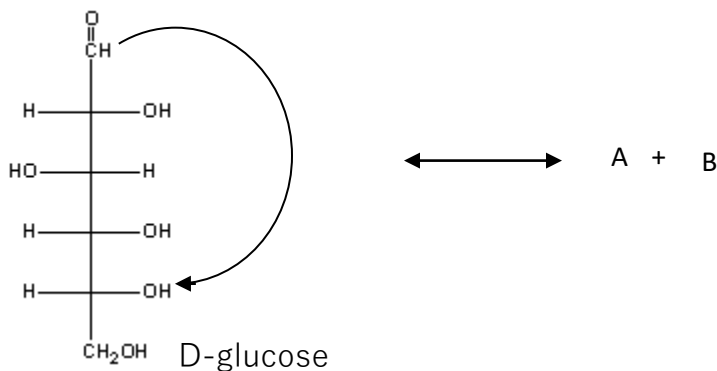
- Draw the structure of the pentapeptide Ser-Gly-Tyr-Ala-Leu. (3mks)
- What is the effect of a double bond on fatty acid structure and its melting point? Explain? (4mks)

- g) Explain why a glycogen molecule has only one reducing end, and yet have many non-reducing ends. (2mks)
- h) Name the types of reactions catalysed by the following classes of enzymes (3mks)
- I. Oxidoreductases
 - II. Transferases
 - III. Hydrolases
- i) The successive nucleotides of DNA are covalently linked through phosphate-group linkages. Using a diagram describe how these linkages are formed. (6mks)
- j) Describe how a peptide composed of glycine and Alanine is formed (4mks)

Question TWO

- a) Using structures differentiate between adenosine and adenylate (4mks)
- b) Describe the Watson crick model for DNA structure (12mks)
- c) Distinguish between DNA and RNA molecules (4mks)

Question THREE



- a) complete the reaction above giving the structure of A and B (4mrks)
- b) Draw the structure of sucrose and maltose clearly indicating the type of glycosidic linkages (6mrks)
- c) Give reasons why sucrose is the only non-reducing disaccharide (2mks)
- d) State the functions of the following polysaccharides
- i. Starch

ii. Cellulose

iii. Glycogen

(3mrks)

e) Distinguish between amylose and amylopectin

(5mrks)

Question FOUR

a) Give the functions of fatty acids

(4mrks)

b) Draw the structure of the following fatty acids

I. 1-Stearoyl, 2-linoleoyl, 3-palmitoyl glycerol

II. Phosphatidylcholine

III. Sphingomyelin

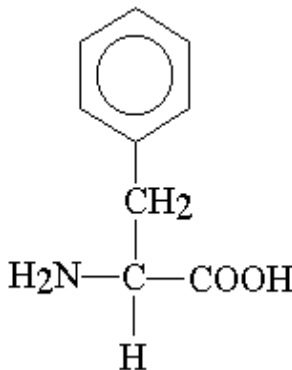
(6mrks)

C) Using an example, describe how phospholipids are hydrolysed by phospholipases

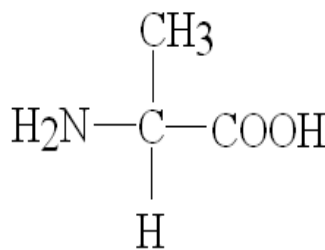
Question FIVE

a) Name the following amino acids

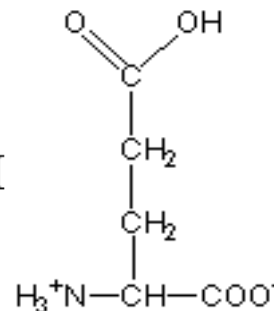
(3mks)



I



II



III

b) Discuss the secondary structure of proteins

(14mrk)

c) Define active site of an enzyme

(3mrks)