

OLABISI ONABANJO UNIVERSITY

DEPARTMENT OF BIOCHEMISTRY

REMO CAMPUS, IKENNE

2011/2012 HARMATTAN SEMESTER EXAMINATION

COURSE CODE: BCH 201/MDB 201:1 (Paper I)

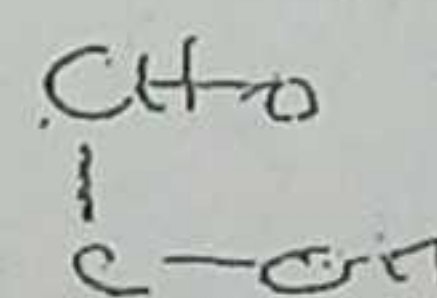
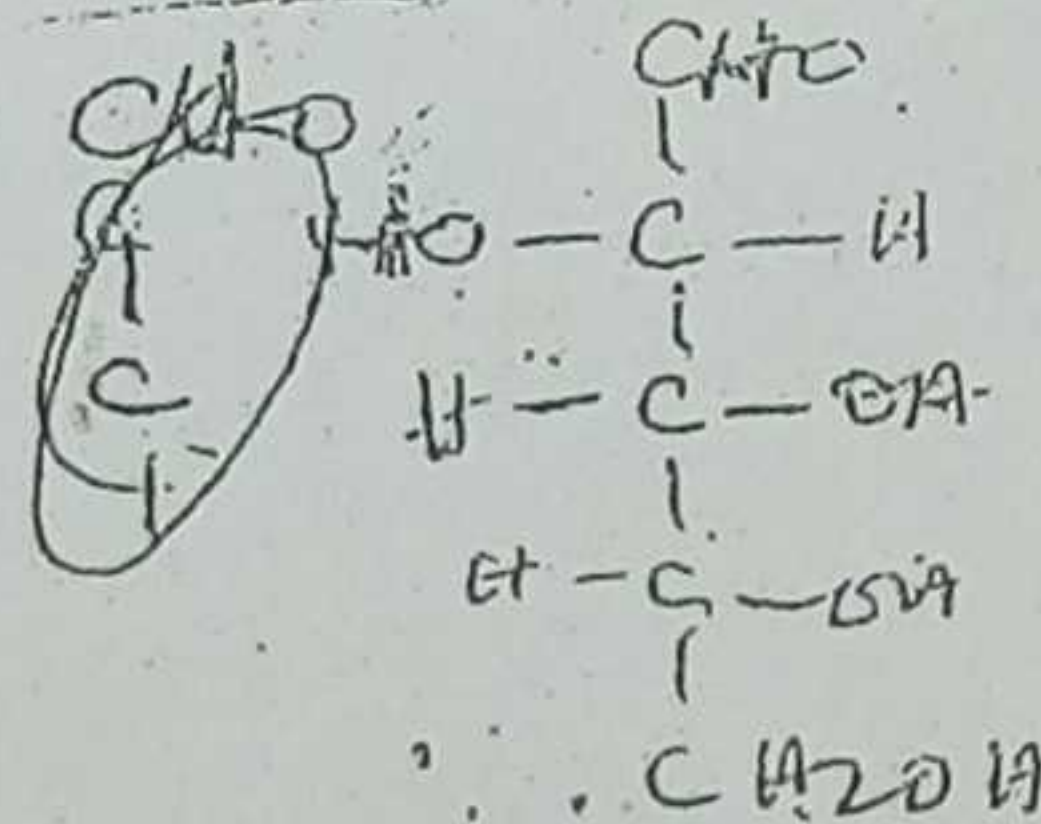
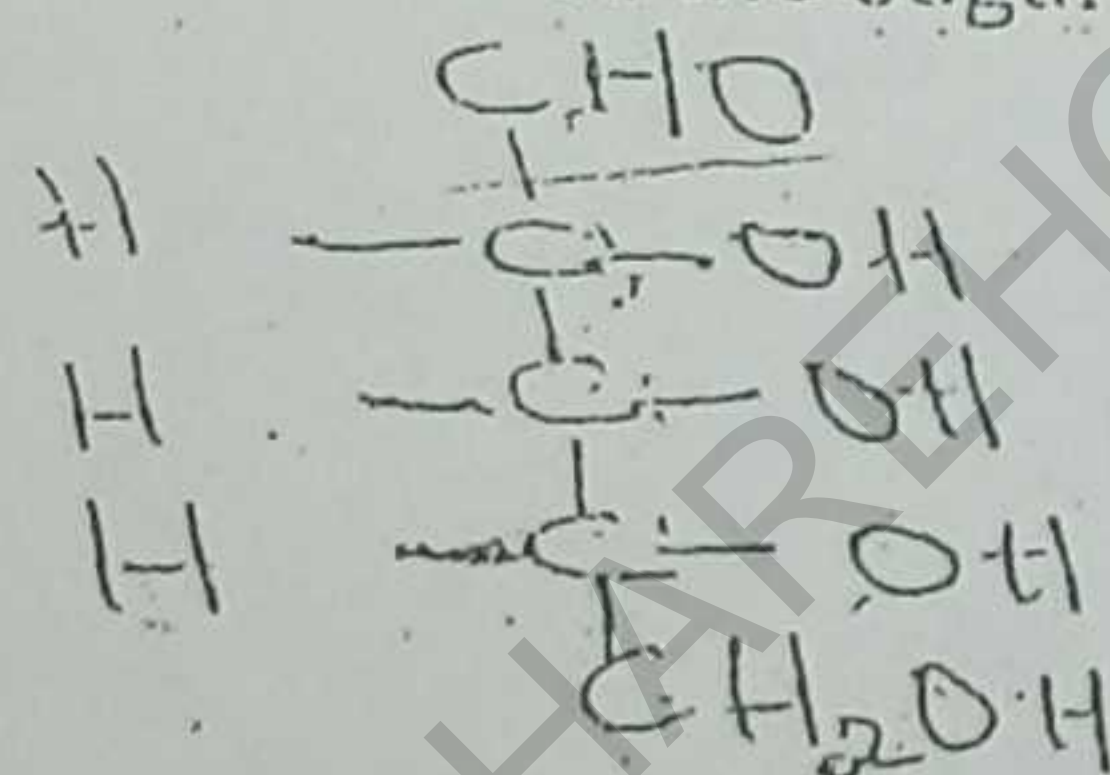
TIME ALLOWED: 2 hours

COURSE TITLE: INTRODUCTION TO BIOCHEMISTRY DATE: 27TH JULY 2012

INSTRUCTION: Answer ALL Questions.

1. (a) Describe briefly the stages involved in the transcription process in the cell.
- (b) i. List four (4) types of post-transcriptional modification which takes place in the eukaryotic cell.
- (b) ii. List four (4) antibiotics that inhibit Nucleic acid & Protein synthesis and their mode of action
- (c) List the functions of the following enzymes in DNA replication:
- (i) DNA Polymerase I
 - (ii) DNA Ligase
 - (iii) Primase
 - (iv) DNA Polymerase III

2. (a) Study the structure of the sugar below and answer the questions that follow:



- (i) Draw the structure of an epimer of the sugar.
- (ii) Give the structures of the D and L stereo-isomers of the sugar.
- (iii) How many stereo-isomers has the sugar.

- (b) Determine the pH of a weak solution of a 0.02 moles/dm³ base ($K_b = 10^{-5}$)

- (c) Calculate the pH of a mixture of 6 ml 0.01M HCl and 4 ml of 0.01M NaOH.

- (a) What are carbohydrates? State some of the biological functions of carbohydrates.

- (b) Using diagrams ONLY show the difference between Aldonic and Uronic acid.

- (a) Draw the structures of (i) Purine Nucleotide (ii) Pyrimidine Nucleotide

- (b) Differentiate between DNA and RNA

- (c) Define the following terms: (i) Polyploid (ii) Denaturation (iii) Hyperchromic Shift

- (a) Derive the Michaelis-Menten Equation.

- (b) With the aid of a diagram, explain the mechanism of action of a named coenzyme, the reaction catalysed by it.