

UNIVERSITY OF KABIANGA  
MAIN EXAMINATIONS  
SECOND SEMESTER 2016/2017 ACADEMIC YEAR

CHE 214: BIOCHEMISTRY

TIME: 3 HRS

**INSTRUCTIONS**

**Attempt all questions in section A and any 2 in section B**

**SECTION A: Answer all questions**

1. With examples, define the following terms:(8 mks)
  - i) Hemiacetal
  - ii) Hemiketals
  - iii) Epimers
  - iv) Anomers
2. i) Draw Fischer's projection of D glucose and D fructose.(4 mks)  
ii) With the aid of a diagram, explain why sucrose is non-reducing sugar.(4 mks)
3. i) Given an amino acid, show how a peptide bond is formed. (4 mks)  
ii) Distinguish between  $\beta$ -N-glycosidic bond and phosphodiester bond. (2 mks)  
iii) Distinguish between simple protein and conjugated protein.(2 mks)
4. i) Give three functions of proteins.(3 mks)  
ii) Draw the structure of cellulose and briefly describe this polysaccharide. (5 mks)
5. i) Give three functions of nucleotides. (3 mks)  
ii) A fatty acid has 20 carbon atoms with two double bonds at position 10 and 12.  
Name this fatty acid using short notation.(2 mks)  
iii) Describe the primary structure of proteins.(3mks)

**SECTION B: Choose ANY TWO questions**

6. Explain six classes of enzymes and give three properties of enzymes.(15 mks)
7. Show that  $\text{pH} + \text{pOH} = 14$  and give five physiological importance of water.(15 mks)
8. Describe the process of glycolysis.(15 mks)