



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF**  
**EDUCATION SCIENCE WITH IT**  
**SECOND YEAR SECOND SEMESTER 2018/2019 ACADEMIC YEAR**  
**MAIN CAMPUS - REGULAR**

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**COURSE CODE:** SZL 204  
**COURSE TITLE:** INTRODUCTION TO BIOCHEMISTRY AND  
GENETICS  
**EXAM VENUE:** **STREAM: (BSC)**  
**DATE:** **EXAM SESSION:**  
**TIME: 2 HOURS**

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**Instructions:**

- 1. Answer ALL questions in Section A and Any two questions in Section B**
  - 2. Candidates are advised not to write on question paper**
  - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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## **SECTION A: SHORT ANSWER QUESTIONS (30 Marks)**

1. State three characteristics of extra-chromosomal inheritance. (3 marks)
2. Define stereoisomerism as a property of carbohydrates giving the structural formula of any two isomers (3 marks)
3. Explain any three causes of mutation. (3 marks)
4. State the biological importance of any three unique properties of water. (3 marks)
5. Explain three factors that affect enzyme function. (3 marks)
6. Describe DNA replication in Eukaryotes. (3 marks)
7. Distinguish between alpha helix and beta pleated sheet secondary structure of proteins. (3 marks)
8. Explain the application of genetics in forensic science and medicine. (3 marks)
9. Explain any three properties of colloids. (3 marks)
10. Explain the significance of meiosis in sexual reproduction. (3 marks)

## **SECTION B: ESSAY QUESTIONS (40 Marks)**

11. Discuss five factors that may alter the typical Mendelian phenotypic ratio. (20 marks)
12. Discuss lipid metabolism (20 marks)
13. Discuss the process of transcription and translation during protein synthesis. (20 marks)
14. Discuss the importance of physiological buffers. (20 marks)