



**KISII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**

**SECOND YEAR EXAMINATION FOR THE AWARD OF THE**  
**DEGREE OF BACHELOR OF SCIENCE BIOCHEMISTRY**  
**FIRST SEMESTER 2021/2022**  
**(FEBRUARY-JUNE, 2022)**

**BIOC213: LABORATORY BIOTECHNIQUES**

**STREAM: Y2 S1**

**TIME: 2 HOURS**

**DAY: WEDNESDAY, 9:00 AM – 11:00 AM**

**DATE: 18/05/2022**

**INSTRUCTIONS:**

- 1. Do not write anything on this question paper.***
- 2. Answer Section A (Compulsory) and any other TWO Questions in section B.***

**SECTION A: ANSWER ALL QUESTIONS (40 MARKS)**

1. Differentiate between simple and differential stains. (5 marks)
2. How would you distinguish between a gram negative and gram positive organism. (5 marks)
3. Define sedimentation coefficient and list the factors affecting sedimentation coefficient. (5 marks)
4. Briefly explain the immunologic techniques in disease diagnosis. (5 marks)
5. Give a note on the assay of metabolites. (5 marks)
6. Describe the sample preparation in light microscopy. (5 marks)
7. Briefly discuss Polymerase chain reaction. (5 marks)
8. Describe the working principle of visible range spectrophotometry. (5 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS (30 MARKS)**

9. Write the principles of different types of Electron microscopy and their applications. (15 marks)
10. Describe how sub cellular organelles can be separated by centrifugation. (15 marks)
11. Describe the essential components of a UV- Visible spectrophotometer and its use in Biochemical analysis. (15 marks)