
CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
BIOCHEMISTRY**

BIOC 412: INTEGRATED LABORATORY TECHNIQUES III

STREAMS: BSC BIOCHEMISTRY Y4S2

TIME: 2 HOURS

**DAY/DATE: TUESDAY 09/04/2019
10.30 A.M.**

8.30 A.M. -

INSTRUCTIONS:

- **Answer question ONE and any other TWO**

QUESTION ONE (30 MARKS)

(a) Outline four applications of antibody antigen reactions. (4 marks)

(b) Giving examples, discuss the principle behind cross reaction between two bacterial species found in a patient's serum

(4marks)

- (c) Describe ABO blood grouping technique. (6 marks)
- (d) Briefly describe steps during cloning of Dolly the sheep. (6 marks)
- (e) Describe the principle behind use of SDS-PAGE for separation of proteins. (4 marks)
- (f) Describe three mechanism of antibiotic resistance in bacteria. (6 marks)

QUESTION TWO

- (a) Describe three causes of increased serum urea concentration. (6 marks)
- (b) Briefly describe 3 types of kidney function tests. (9 marks)
- (c) Outline circumstances where a liver function test may be required. (5 marks)

QUESTION THREE

- (a) Describe the step by step procedure for:

(i) DNA extraction (6 marks)

(ii) Separation of DNA using agarose gel electrophoresis. (8 marks)

(b) Discuss the advantages and disadvantages of antigen-antibody precipitation methods.

(6 marks)

QUESTION FOUR

(a) Discuss the principle, procedure and application of radioimmune Assay (RIA) (8 marks)

(b) Describe the techniques and troubleshooting during Western blotting. (14 marks)
