CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 342: INTEGRATED LAB TECHNIQUES II

STREAMS: BSC BIOC Y3S2 **TIME: 2 HOURS**

DAY/DATE: MONDAY 05/07/2021 **2.30 P.M. – 4.30 P.M.**

INSTRUCTIONS:

- **Answer Question One and any other Two Questions**
- **Do not write on the question paper**

Question One (30 marks)

a. Describe the principle of electrophoresis. . (5 marks)

b. Briefly describe how polyacrylamide gels are prepared. (5marks)

c. What is the applied centrifugal field at a point equivalent to 5 cm from the centre of rotation and an angular velocity of 3000 rad s^{-1}? (5 marks)

d. Describe the application of silver staining in protein detection following electrophoresis. (7 marks)

e. Describe the application of spectrophotometry and fluorimetry in continuous enzyme assays. (8 marks)

Question Two (20 marks)

a. Describe the variants of Polymerase Chain Reaction. (10 marks)

b. Describe how DNA cloning is achieved using the cell based approach. (10 marks)

Question Three (20 marks)

a. Describe the different types of ELISAs. (12 marks)

b. Outline the various applications of ELISA. (8 marks)

Question Four (20 marks)

a. Describe the principle behind isoelectric focusing (10 marks)

b. Describe how lactate dehydrogenase activity can be detected by gel electrophoresis. (10 marks)
