

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 443: INTERGRATED LABORATORY TECHNIQUES III

STREAMS: BSC. BIOC (Y4S2)

TIME: 2 HOURS

DAY/DATE: TUESDAY 21/09/2021

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- *Answer question one and any other two*
- *Do not write on the question paper*

Question one (30 marks)

- Describe the benefits and limitations of serological assays in Covid-19 infection. (5 marks)
- Outline the key consideration while designing suitable primers. (5 marks)
- Calculate the total number of cells suspended in a final volume of 5ml, taking into account that the cells were diluted 1:2 before counting and the number of cells counted with the haemocytometer was 400. (5 marks)
- Describe how frozen stocks of cells can be revived. (7 marks)
- Describe the steps involved in Loop-mediated isothermal amplification (LAMP). (8 marks)

Question two (20 marks)

Describe how cell harvesting can be achieved by using:

- Mechanical means. (5 marks)
- Proteolytic enzymes. (15 marks)

Question three (20 marks)

- a) Describe how isolation of DNA can be achieved using EDTA as the isolation buffer. (10 marks)
- b) Describe the factors that determine the concentration, amount or activity of a given cell component that can be detected in the fluids of a healthy individual. (10 marks)

Question four (20 marks)

- a) Briefly describe how analyzing of information of particular DNA sequence can be done using bioinformatics tools. (10 marks)
 - b) Describe how DNA cloning is achieved using the cell-based approach. (10 marks)
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