

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 240: BIOCHEMICAL INSTRUMENTATION

STREAMS: BSC.BIOCHEMISTRY (Y2S1)

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 31/3/2021

2.30 PM – 4.30 PM

INSTRUCTIONS:

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

Question One (30 Marks)

- Differentiate between the terms laboratory instrumentation and laboratory techniques. [4 Marks]
- Explain the term thermal death time (TDT) as applied in autoclaving. [4 Marks]
- Explain the difference between accuracy and precision as terminologies used in weighing balances and scales. [4 Marks]
- Describe the working principle of a spectrophotometer. [6 Marks]
- Explain why flame photometry unlike other spectroscopy methods finds little use in research and analysis. [6 Marks]
- Describe working principle of a hot air oven and give its advantages as a sterilization equipment. [6 Marks]

Question Two (20 Marks)

- a. Describe operationalization of a soxhlet extractor. [10 Marks]
- b. Describe how automated cell counters quantify, classify and describe cell populations in a blood sample. [10 Marks]

Question Three (20 Marks)

- a. Describe the working principle of a colorimeter. [10 Marks]
- b. Describe the steps for operating a photoelectric colorimeter. [10 Marks]

Question Four (20 Marks)

- a. Describe the factors that can affect fluorescence while analyzing samples using a fluorimeter. [10 Marks]
 - b. Describe the relationship between intensity of fluorescence and concentration in fluorometry. [10 Marks]
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