

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF BIOMEDICAL SCIENCE**

**BMET 443: ANIMAL CELL CULTURE AND BIOTECHNOLOGY**

**STREAMS: Y2 S2 BSc.**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 24/3/2021**

**8.30 AM – 10.30 AM**

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**INSTRUCTIONS:**

- Answer question ONE (Compulsory) and any other TWO questions.
- Do not write on the question paper

**Questions**

**Question 1 (Compulsory) 30 marks)**

- a) Explain how viable and non-viable cells can be distinguished in an animal cell laboratory. [6 Marks]
- b) Discuss 4 major applications of animal cell culture. [4 Marks]
- c) Briefly discuss major advantages and disadvantages of using animal cell culture. [4 Marks]
- d) Describe 3 techniques used in selection of a cell type from a primary cell culture in an animal cell culture laboratory. [6 Marks]
- e) Outline 4 properties of Continuous cell line. [4 Marks]
- f) Highlight the major disadvantages associated with natural media. [2 Marks]
- g) Explain the criteria in selection of cell lines. [4 Marks]

**Question 2 [20 Marks]**

- a) Describe the protocol adopted in an animal cell culture laboratory when thawing the cells for culture. [10 Marks]
- b) With use of a diagram, describe the phases of a cell growth. [10 Marks]

**Question 3 (20 Marks)**

- a) Explain 5 special conditions required for optimum cell line growth. [10 Marks]
- b) Explain the role of matrix in cell culture. [10 Marks]

**Question 4 (20 Marks)**

a) Explain 5 factors that influence cell line differentiation. [10 Marks]

b) Describe the procedure for cell counting in animal cell culture laboratory using a hemocytometer. [10 Marks]

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