



# Technical University of Mombasa

Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND  
BIOTECHNOLOGY  
**BTMBT**

**SBT 2447 : CELL TECHNOLOGY**

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 2013 SERIES

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2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

## Question ONE

- a) Define the following terminologies as used in animal cell culture
- (i) Primary culture ( ½ mark)
  - (ii) Finite cell line ( ½ mark)
  - (iii) Senescence ( ½ mark)
- b) Describe the biosafety levels of containment. (6marks)
- c) (i) Explain the meaning of “contact inhibition” (1mark)
- (ii) Describe how it relates to cancer cells (1mark)

- d) Distinguish between recombinant protein vaccines and DNA vaccines **(2marks)**
- e) Outline the steps involved in recombinant vaccines production **(4marks)**
- f) State the characteristics of monodonal antibodies **(1 ½ marks)**
- g) (i) Describe the basic classes of media used in cell culture laboratory **(5marks)**  
(ii) Describe TWO freezing media for cryopreservation of cells. **(2marks)**
- h) Size exclusion chromatography is one of the protein purification methods. Outline the merits and demerits of this method **(3marks)**
- i) What are the demerits of using recombinant vaccines. **(3marks)**

### **Question TWO**

Discuss the production of purified monodonal antibodies **(20marks)**

### **Question THREE**

Contamination of cell cultures is the most common problem encountered in cell culture laboratory. Discuss **(20marks)**

### **Question FOUR**

- a) Discuss factors you would consider when determining the need for passaging cell cultures **(10marks)**
- b) Discuss the physic-chemical environment of cell cultures **(10marks)**

### **Question FIVE**

- a) Discuss factors to consider when selecting appropriate cell line for an experiment **(10marks)**
- b) Describe the elements of aseptic technique in cell culture **(10marks)**