THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

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JANUARY – APRIL 2015 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF NATURAL SCIENCES (BIOLOGY)

REGULAR PROGRAMME

BIO 107: INTRODUCTION TO LABORATORY TECHNIQUES IN BIOLOGY

Date: April 2015	Duration: 2 Hours
Instructions: Answer Question ONE and	any other TWO Questions.

Q1. a)	equip these	rtue of research being performed each laboratory is unique, the oment in use and the physical utilization of space. Regardless of all factors, teaching and research laboratories must adhere to basic y policies.
	i)	List and explain briefly the major laboratory safety guidelines. (7 marks)
	ii)	How does one identify potential hazards, under hazard awareness. (3 marks)
	iii)	Explain who is ultimately responsible for your safety in the laboratory.
	iv)	(1 mark) In case of a fire emergency the acronym RACE is used, explain what it represents.
		(4 marks)
	V)	List four personal protective equipment in a laboratory. (2 marks)
	vi)	How does one ensure their health and hygiene in the lab. (3 marks)
	vii)	List safety equipment found in the laboratory.
		(2 marks)
b)	i)	List and explain the various microscopic techniques giving examples.
	ii)	(4 marks) Give TWO examples of optical microscope and explain their
		principle. (7 marks)

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	microscopy.	<i></i>		
	iv) Give TWO examples of optical microscope and explain th principle.	(1 mark) eir		
	v) In electron microscopy TWO principles are exploited nam	(2 marks) e them. (1 mark)		
Med a) b) c) d) e)	What are chimisterilants and give 3 examples. List the Basic requirement of culture media giving examples Describe the classification of culture media Explain the difference between simple and complex media	(4 marks) (4 marks) (4 marks) (4 marks)		
Sect a) b) c) d)	Describe the grum slaining technique and explain the meaning and negative aspects of staining. List FIVE techniques of staining. List SIX common biological stains and explain the colour the	(5 marks) of positive (5 marks) (5 marks)		
Spetrophotomety and Centrifugation a) Draw a well labeled diagram of a spectrophotometer.				
b)	Describe the principle of a spectrophotometer and state the Bee	(5 marks) r's law. (5 marks)		
c)	Describe how a centrifuge works	. ,		
d)	List the different types of centrifuge and state the main use of ce	(5 marks) ntrifuges. (5 marks)		
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DNA a)	A typing techniques and their uses. Describe what is DNA and RNA and outline the major difference			
		s. (4 marks)		
a) b)	Describe what is DNA and RNA and outline the major difference Describe briefly the process of obtaining DNA.			
a) b) c)	Describe what is DNA and RNA and outline the major difference Describe briefly the process of obtaining DNA. Briefly explain what a PCR is and its entire process.	(4 marks)		
a) b)	Describe what is DNA and RNA and outline the major difference Describe briefly the process of obtaining DNA.	(4 marks) (4 marks)		

Explain the difference between Darkjied and Bright field

iii)

Q2.

Q3.

Q4.

Q5.

f) Briefly explain the process of southern blotting. (4 marks)

#### *END*

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