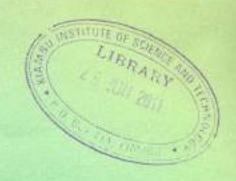
1408/314 BIOLOGY TECHNIQUES June/July 2010 Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

SCIENCE LABORATORY TECHNOLOGY CRAFT

BIOLOGY TECHNIQUES

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination.

Answer booklet Scientific calculator (battery operated)

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A and any TWO questions from section B.

Each question in section A carries 4 marks while each question in section B carries 20 marks.

This paper consists of 3 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

2010 The Kenya National Examinations Council

Turn over

SECTION A (60 marks)

Answer ALL the questions in this section.

1,	Define the following types of pasteurization methods:						
	(a)	flash;	(2 marks)				
	(b)	holder.	(2 marks)				
2.	State the reason for carrying out each of the following techniques in a histology laboratory:						
	(a)	staining;	(1 mark)				
	(b)	embedding;	(1 mark)				
	(c)	mounting;	(1 mark)				
	(d)	clearing.	(1 mark)				
3.	Sugg	est any four reasons for handling of laboratory animals.	(4 marks)				
4.	Disti	nguish between neutrophils and basophils in terms of morphology.					
			(4 marks)				
5.	Defin	ne the following terms:					
	(a)	population;	(2 marks)				
	(b)	nitrification.	(2 marks)				
6.	Disti	nguish between enriched media and enrichment media.	(4 marks)				
7.	State	any four factors necessary for growth of micro-organisms.	(4 marks)				
8.	State the function of the following substances in a living organism:						
	(a)	amino acids;	(1 mark)				
	(b)	carbohydrates;	(1 mark)				
	(c)	fats;	(1 mark)				
	(d)	enzymes.	(1 mark)				
9.	Draw a diagram representing the following stages in cell division:						
	(a)	early anaphase;	(2 marks)				
	(b)	late anaphase.	(2 marks)				
10.	Outli	ne the biuret test.	(4 marks)				
11.	Desc	ribe the preparation of a 3% acid alcohol.	(4 marks)				

	12.	(a)	Define the term herbarium.	(1 mark)
		(b)	State any three methods of collecting plant specimens.	(3 marks)
	13.	Define	the following terms and give an example of each:	
		(a)	biotic factor;	(2 marks)
		(b)	abiotic factor.	(2 marks)
	14.	Draw	a labelled diagram of bacteriophage.	(4 marks)
	15.	(a)	Define the term "resolving power" as applied to microscopy.	(2 marks)
)		(b)	Find the total magnification if the eye piece is x10, focal length is 4mm a tube length is 160mm.	nd working (2 marks)
			SECTION B (40 marks)	
			Answer any TWO questions from this section.	
	16.	State t	he differences between mitosis and mejosis.	(20 marks)
	17.	(a)	State the characteristics of an ideal fixative.	(7 marks)
		(b)	Outline chemical test used to determine the end-point of decalcification.	
				(13 marks)
)	18.	(a)	Explain the meaning of the following terms:	
			(i) community:	(2 marks)
			(ii) food chain;	(2 marks)
			(iii) ecosystem.	(3 marks)
		(b)	Outline the steps followed in setting up an outoclave for sterilizing cultur	e plates.
				(13 marks)
	19.	(a)	Distinguish between light microscope and electron microscope.	(10 marks)
		(b)	Describe the care of microscope in the laboratory.	(10 marks)