

UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (BIOLOGY)

SBT 105/SMB 102: INTRODUCTION TO MICROBIOLOGY

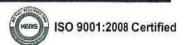
D	ATE	E: APRIL 3, 2018 TIME: 11:00AM-1:00P	M
		RUCTIONS: Answer ALL Questions from SECTIONS A and B, and ONE Question ed from Section C.	
		FION A: Multiple Choice Questions (1 Mark each) e tick in the box opposite the correct answer.	
1.		ne golden age of microbiology sought to find answers to all of the following phenome	non
		The germ theory of disease	
		Spontaneous generation	
		The cause of diseases	
		Fermentation	
2.	W	hich of the following organisms was found to cause the Siberian plague by Robert Koch	1?
		Bacillus thuringiensis	
		Bacillus anthracis	
		Bacillus aerius	
		Bacillus aerophilus	



3.	Which one of the following organisms is not a diplococcus
	☐ Moraxella catarrhalis
	□ Streptococcus pneumoniae
	□ Neisseria gonorrhoeae
	□ Streptococcus agalactiae
4.	Which of the following statements is not true about Archaea
	☐ They lack peptidoglycan in their cell walls
	☐ RNA polymerase of archaea is similar to that of eukaryotes
	\square RNA polymerase of archaea is similar to that of prokaryotes
	☐ Cell walls of archaea are made up of glycoproteins and polysaccharides
5.	One of the following statements is not true about viruses
	☐ They have no organelles
	☐ Their genomes consists of only one type of nucleic acid
	☐ They are metabolically inert
	☐ They have complex metabolic pathways
6.	Which of the following is not an indirect method for the measurement of cell mass?
	☐ Nutrient composition
	☐ Cell dry weight
	□ Viscosity
	☐ Heat evolution
7.	When preparing media for culturing microorganisms, radical shifts in pH can be prevented
	by incorporating
	□ A buffer
	☐ An oxidizing agent
	☐ A reducing agent
	☐ A gelling agent



8.	Se	xual reproduction in the Protozoa occurs most commonly by
		Conjugation
		Gametangial contact
		Binary fission
		Binary fusion
9,	W	hich of the following disinfectant is not effective against viruses?
		Hydrogen peroxide
		Hypochlorite
		Formaldehyde
		Phenolic disinfectants
10	. Wl	nich of the following is not true of protozoa?
	\Box	Lack cell wall
		Produce no sporebearing structures
		Comprise the microbial population known as phytoplankton
		Form active feeding forms called trophozoites
11.	Sta	rvation proteins are produced by a culture during which of the following segments of the
	gro	owth curve?
		Stationary phase
		Lag phase
		Exponential phase
		Death phase
12.	The	e primary stain of Gram's method is
		safranin
		phenolpthalene
		crystal violet
		methyl red



	hich of the following problems would makes it impossible to satisfy stulates?	all of Koch's
	Microorganism causing serious symptoms in humans	
	Microorganism which cannot be isolated in pure culture	
	Microorganism causing only one disease	
	Genes from the microorganism cannot be amplified by PCR	
15. Al	l bacteria that inhabit the human body are?	
	heterotrophs	
	chemolithotrophs	
	autotrophs	
	phototroph	
SECT	ION B: SHORT ANSWER QUESTIONS (5 Marks Each)	
Your	answers should be brief and to the point (Use the examination answer l	ook provided)
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16. De		Lun on an
16. De	scribe the Louis Pasteur's swan neck experiments	(5 marks)
16. De	scribe the Louis Pasteur's swan neck experiments	(5 marks)
16. De 17. Sta 18. Di 19. Di	scribe the Louis Pasteur's swan neck experiments ate the differences between eukaryotic and prokaryotic cells scuss the spirilla patterns of bacterial arrangement	(5 marks) (5 marks)

SECTION C: ESSAY QUESTIONS (25 Marks Each)

Write an essay on any ONE of the following topics (Use the examination answer book provided)

22. Discuss the process of viral replication and the techniques that can be applied to inactivate viruses
(25 marks)

23. Discuss the different categories unicellular algae

(25 marks)

24.

a) Illustrate the bacterial growth curve

(5 marks)

b) Explain the different phases of growth of bacteria

(15 marks)

c) Outline five major components of a bacteria growth medium

(5 marks)

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