

NAME:	INDEX NO:
SIGNATURE:	
553/1	
BIOLOGY	
THEORY	
PAPER 1	
MAY 2019	
2 ½ HOURS	

KCB MOCK EXAMINATIONS, 2019

UGANDA CERTIFICATE OF EDUCATION
BIOLOGY
PAPER 1

2 HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES

- Answer ALL questions in Section A and B, plus TWO questions in Section C.
- Answers to Section A must be written in the space provided at the end of the Section.
 Answers to Section B must be written in the space provided.

FOR EXAMINER'S USE ONLY.			
SECTION	MARKS	EXAMINER'S SIGNATURE	
A:			
B: NO. 31			
NO. 32			
NO. 33			
C: NO.			
NO.			
TOTAL			

SECTION A

1.	The b	est method to prevent gully erosion o	n a cult	tivated hill is
	A.	mulching	В.	strip cropping
	В.	tree belts	D.	contour ploughing
2.	The le	eaves of mimosa pudica fold when tou	uched.	This is an example of a
	A.	negative phototropism	C.	nastic response
	В.	positive thigmotropism	D.	tactic response
3.	The fo	ollowing belong to the same group of	organis	ms except:
	A.	penicillium	C.	trypanosome
	B.	entamoeba	D.	plasmodium
4.	Which	n one of the following is true of comm	nensalis	m?
	A.	Both organisms benefit		
	В.	one organism benefits and other is	harmed	I
	C.	one organism benefits and other is	unharm	ned
	D.	one organism suffer some harm		
5.	Which	n of the following are products of ana	erobic r	respiration in plants?
	A.	Ethanol, carbondioxide, energy	C.	Lactic acid, carbondioxide
	В.	Carbondioxide, water, energy	D.	Ethanol, carbondioxide, water
6.	Enzyn	nes differ from other catalysts becaus	e enzyr	mes
	A.	are required in small amounts	C.	speed up reactions
	B.	are proteins in nature	D.	respond to temperature changes
7.	Unive	rsal recipients are said to be with blo	od grou	p AB because:
	A.	They have antigens		
	В.	They have both antibodies $\underline{\mathbf{a}}$ and $\underline{\mathbf{b}}$		
	C.	They ate no antibodies		
	D.	They have both antigens and antibo	odies	
8.	Which of the following increases in muscle cells when they are lacking enough oxygen?			
	A.	Bicarbonate ions	C.	Ethanol
	В.	Lactic acid	D.	Urea
9.	The co	oncentration of a plant hormone whi	ch stim	ulates shoot growth:
	A.	also stimulates root growth	C.	causes branching or roots

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- B. inhibits root growth D. makes the root turn downwards
- 10. Which one of the following pairs of bones is found in human fore limbs?
 - A. Tibia and fibula

C. Ulna and radius

B. Tibia and humerus

D. Radius fibula

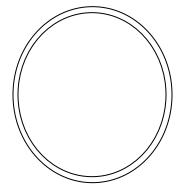
- 11. Which one of the following is density dependant factor controlling animal populations?
 - A. Temperature

C. Rainfall

B. Predators

D. Bush burning

12. Figure 1 shows the transverse section through a nature orange fruit.



Which one of the following is the appropriate placentation shown by the fruit?

A. Basal

C. Marginal

B. Free central

D. Axile

- 13. Which one of the following is the main difference between chilopods and diplopods?
 - A. Body colour

C. Number of thoracic segments.

B. Body length and shape

D. Number of legs per segment

- 14. An animal that hunts other animals for food is called:
 - A. Primary consumer

C. Predator

B. Decomposer

D. Prey

15. Which term is used to describe the lock and key fit that takes place between a molecule of an enzyme and its substrate?

A. Optimum

C. Specific

B. Hypothesis

D. Synthetic



16.	Whic	ch one of the following organisms doe	s not e	xperience intermittent growth?
	A.	Fish	C.	Rabbit
	В.	Toad	D.	Grasshopper
17.	Why	is it important to boil a leaf in ethano	l while	carrying out the test for it?
	A.	To dissolve waxy cuticle		
	В.	To remove chlorophyll		
	C.	To make cells permeable to iodine		
	D.	To stop chemical reaction in the ce	lls	
18.	The	source of the energy which flows thro	ugh the	e food chain is:
	A.	Glucose	C.	Sunlight
	В.	Respiration	D.	Oxygen
19.	Whic	ch one of the following is not a vector	?	
	A.	Tsetse fly	C.	Dragon fly
	В.	Tick	D.	House fly
20.	Whic	ch one of the following set consist of s	ubstan	ces that are stored in the:
	A.	Glucose, glycogen and vitamin D	C.	Urea, glycogen and iron
	В.	Iron, glycogen and amino acid	D.	Iron glycogen and vitamin D
21.		ch of the following pairs of corrective ody temperature?	mechar	nisms would occur in rean increase
	A.	Dilation of blood capillaries in the s	skin and	d contraction of hair erector muscles
	В.	Constriction of blood capillaries in	the skir	n and contraction of erector muscles
	C.	Dilation of blood capillaries in the s	skin and	d relaxation of hair erector muscles
	D.	Constriction of blood capillaries in	the skir	n and contraction of hair erectormuscles
22.	Whic	ch of the following is the function ada	ptation	of a molar tooth?
	A.	sharp pointed	C.	ridged surface
	В.	flat smooth top	D.	many roots



23. Figure 2 below shows a set up of an experiment to investigate the action of enzyme catalase on hydrogen peroxide.

Fig. 2.

Which one of the following observations would likely be made in the above experiment?

- A. Bubbles of colourless gas are given off from test tube Y
- B. Bubbles of colourless gas are given off from test tube X
- C. Effervescence seen in test tube Y
- D. No effervescence seen in test tube X
- 24. Which part of the kidney nephron does re absorption of glucose occur?
 - A. cerebrum

C. hypthalamus

B. medulla oblongata

D. cerebellum

- 25. In which part of the kidney nephron does re absorption of glucose occur?
 - A. Distal convulated tubule

C. Descending loop of Henle

B. Proximal convulated tubule

D. Ascending loop of Henle

- 26. The main reason for including legumes in a crop rotation is to:
 - A. improve the level of nitrogen in the soil
 - B. maintain useful bacteria in the soil
 - C. prevent soil erosion
 - D. improve farming methods



The figure 3 shows a vertebra bone. Use it to answer questions 27 and 28.

Fig. 3.

27.	Nam	e the type of vertebra sho	wn in the figure.	
	A.	Atlas	C.	Lumbar
	В.	Thoracic	D.	Axis
28.	In w	hich part of the body is the	e vertebra above fo	und?
	A.	Neck	C.	Abdominal
	В.	Check	D.	Tail
29.	Prod	luction of many pollen grai	ins is an adaptation	for:
	A.	cross pollination	C.	wind pollination
	В.	insect pollination	D.	self pollination
30.	In th the:	e colonization of a bare ro	ck, the next most li	kely group of plants after the lichens are
	A.	grass	C.	shrubs
	В.	mosses	D.	trees



ANSWER SHEET FOR SECTION A

1	11	21	
2	12	22	
3	13	23	
4	14	24	
5	15	25	
6	16	26	
7	17	27	
8	18	28	
9	19	29	
10	20	30	

SECTION B

31. Six identical potato cylinders measuring 2.0cm in length were each placed in different concentration of sugar solution. After two hours, the potato cylinders were removed from the solutions and re-measured. The table below shows the results.

Concentration of sugar solutions ol^{-1}	Length of potato cylinder after 2 hours (cm)	Difference in length of potato cylinders after 2 hours (cm)
0.1	2.40	
0.2	2.25	
0.3	2.15	
0.4	2.05	
0.5	1.98	



0.6	1.02	

- (a) Complete the table by filling in the difference in length of each potato cylinder after 2 hours (i.e length after 2 hours subtract initial length). (03mks)
- (b) In the space provided, plot a graph of the difference in length after 2 hours against concentration of sugar solutions. (05mks)

(c)	(i)	What was effect of the concentration of sugar solution	on the length of
		the potato cylinders?	(04mks)
	•••••		
	(ii)	Explain why concentration of sugar solutions affected t	he length of the
		potato cylinders as stated in c(i).	(03mks)

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	(d)	(i) From your graph, determine the concentration sugar that would give difference in length of a potato cylinder. ((ve no 02mks)
		(ii) Explain what happens in a potato cylinder when no change in length occurs. ((02mks)
	(e)	Suggest one other observation other than change in size, that would be ma on the potato cylinders. ((nde 01mk)
32.	(a)	Distinguish between predator and prey. ((03mks)
	(b)	Figure 4 below shows predator/prey relationship. Study the figure and ans questions that follow.	wer the

<u>)</u>

33.

(a)



	Time	
(i)	Describe the relationship between the predator and prey.	(03mks)
(ii)	Explain the relationship of the predator and prey describe in b(i)	
(iii)	Name two other external factors that may affect the population in the habitat.	(02mks)
	guish between endocrine and exocrine glands.	(02mks)

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(b) B	Below is a diagram showing the location of some endocrine gland.	
	(i	i) Name glands labelled A to D.	(02mks)
		A:	
		B:	
		C:	
		D:	
	(i	ii) Name the hormone produced by each gland.	(02mks)
		A:	
		B:	

D:.....



	(c)	(i) (ii) (ii)	
		SECTION C Answer two questions only from this section.	
34.	(a)	Describe inhalation and exhalation in a bony fish.	(11mks)
	(b)	How is the respiratory surface in fish adapted to its functions?	(04mks)
35.	(a)	Describe the structure of the different types of bird's feathers, stating the	
		function of each type.	(08mks)
	(b)	What factors contribute to bird's ability to fly?	(07mks)
36.	(a)	What is excretion?	(02mks)
	(b)	With the aid of a labelled diagram, describe the functioning of the kidney in excretion.	(13mks)
37.	Descri	be an experiment to show that oxygen is produced during photosynthesis.	(15mks)

<u>END</u>