NAME		
	SONAL No	*****
	P530/1	•••••
1	BIOLOGY THEORY	



Paper 1

Monday 14th August 2023 (Morning) 2 hours 30 minutes

the mover correct of chloride ions from the classicalinto r ACHOLI SECONDARY SCHOOLS EXAMINATIONS COMMITTEE

Uganda Advanced Certificate of Education Joint Mock Examinations, 2023 **BIOLOGY THEORY**

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES: 2012/01 Line 2012/19

✓ Answer ALL the questions in both Sections A and B.

- ✓ SECTION A Answers to this section should be indicated by circling the correct alternative.
- ✓ SECTION B Answers to this section should be written in the spaces provided.

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Quest	ions	Marks	C. increased vaticities
Section A	: 1 – 40	refleting responses	The elegate of the second second of the seco
	41	Alle alle a Lei Coden () (I de la	esspiratory patiewsy?
o in in a serior atro	42	D. Nigrif	A. Deninitying butteria C. Pisotosyntheis berteria
Section B	43	salnola io etnor ca ha	y or we relieve to the following functions are perform
ew cells	1.44oit	B. produc	A. sesseption of cayeen
e etopoora s	45	Manual Company	D. provision of support
alij metaliki	46		9. What is the significance of the three A. Allows rapid transmission of
TOTA	Leiba		B. Allows detection of changes

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SECTION A

	The production of red blood cells in the man		
	A. bone marrow B. liver C. s	pleen D. lymph nodes	
2.	The diameter of glomerular capillaries is muc	ch less than that of arterioles in order to:	
	A. eliminate glucose from the filtrate	B. raise the filtration pressure	37 M
	C. eliminate globular proteins from urine	D. regulate the process of filtration	
	ground protonic from time	D. regulate the process of matthew	(De 4e)
3.	During carbon dioxide transport, the movement blood cells is aimed to:	ent of chloride ions from the plasma into r	ed
	A. restore its water potential	B. restore the electronegativity of the	cell
	C. maintain a larger diffusion gradient fo	rions	
	D. maintain the blood pH	Janji elocija Premiorijan	
		190 SMT YD 0,20) (3	
4.	Which one of the following pairs of hormone physiological stress in plants?	es would be most active during periods of	
	A. Ethene and abscissic acid	B. Cytokinins and ethene	
	 C. Abscissic acid and gibberrelins 	D. Ethene and auxins	0.00
5.	Which of the following epithelial tissues line	s the oviduct and kidney tubules respective	elv?
	A. Stratified and cuboidal	B. Ciliated and cuboidal	erdieur.
	C. Squamous and ciliated	D. Ciliated and squamous	viojin
-	The Cillianian and a Control of the Control		*
0.	The following are the effects of territorial be	and the second of the second o	
	A. increased in-breeding	B. reduced competition	
	C. increased variation	D. reduced reproductive fitness	
~	77.1 61 61	i ilia a A agrapa	
7.	Which of the following groups of bacteria us respiratory pathway?		the
	A. Denitrifying bacteria	B. Pathogenic bacteria	
	C. Photosynthetic bacteria	D. Nitrifying bacteria	
_			
8.	The following functions are performed by ro		
	A. absorption of oxygen	B. production of new cells	
	C. provision of support	D. storage of waste products	13
0	What is the similiannes of the thinks		
,	. What is the significance of the three semi-cir	rcular canals being in different planes?	
	7. Allows tapid transmission of sound v	Inrations	
	B. Allows detection of changes of move	ments in various directions	
9	ASSEC 2023 Acholi Secondary School	s Examinations Committee	
	The state of the s	Tumbulans Committee Tu	ırn Over
		y. The second se	

D. Brings about summation of information from various directions
C. acuromo cator clasurbonecs D. hardening of bones
10. Which type of population growth curve arises in a population that is characterised by explosion followed by rapid decline? Aldo to also about the band TOM of grown to add to do allow.
explosion followed by rapid decline? gildo he also about the band. TOM of grawould out to about we
A. Boom and burst curve
C. Cyclic population curve D. Logishal
k. Which ene of the following is the gramary function of lymphanic fishers. In the base
11. The fact that all native mammals of Australia are marsupials and they are not represented elsewhere in the world is evidence for evolution that is harically and they are not represented.
A. developmental B. biogeographic C. genetically isolated
D. discontinuous distribution boold rule of the subsection learning to modern in a
12. The part of the brain that controls language, memory, sensation and decision making is the:
A. cerebrum B. thalamus C. hypothalamus D. cerebellum
, i a series and i a
13. Which of the following cell types divide to produce cells that make antibodies?
A. B – cells B. Cytotoxic C. Neutrophils D. Helper T – cells
C. Leydig Celigation of the control of Section in College and the Section of the college and t
14. Earthworms have a large number of looped blood capillaries in their epidermis in order to:
A. reduce the diffusion distance between the body surface and blood vessels
B. provide large surface area for diffusion at a Secretary of all the secretary of the secr
C. increase the pumping action if pseudo hearts
D. maintain a steep concentration gradient for gaseous exchange in allocar zizotom to a resingular
A. Tour cells containing one homologous of each homologous pair
15. In each of the following cases an RH- mother is not likely to develop antibodies against
RH+ foetus except when she is of blood group O and the foetus is of blood group:
A. AB B. O tied enegolom C. Area to enogolomo D. B. and interior election of the control of the
16. In the course of pregnancy, the placenta takes over the role of producing oestrogen and
progesterone because:
A. menstruation is terminated B. menstruation has commenced
C. corpus luteum has degenerated D. corpus luteum has persisted
During water stress, photosynthesis reduces in plantschaftly due to shortege of servery. C
17. Which of the following pairs of structures are NOT homologous?
A. Arms of humans and wings of hirds
B. Legs off insects and those of mammals seupood signifur(a dis) on an arrangement at AVS appropriate and those of mammals.
C. Pods of beans and pericarps of maize grains and electric and above an emission of property of the property
D. Pectoral fins of fish and arms of humans in and all as semicondividing at AMIC most sebore sit series
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18. Excessive variation in the calcium	m ion content	of blood may resul B. mental retarda	tinto:
A. dehydration of the bodyC. neuromuscular disturbance	.00	D hardening of b	ones
	***	and the state of t	, तेत्र तत्तु च्यांन्याययम् वे व्य व् र त
19. Which of the following is NOT	found in the h	ody cells of obligat	es anaerobes?
19. Which of the following is NOT A. Sugars B. ATI	B C. Gly	ycolytic enzymes	D. Mitochondria
	Logiscul X		
20. Which one of the following is th			tissue?
A. Filtration of foreign partic	les out of bloo	Australia meta de	ta kus marang malah dia 19da da
B. Production and storage of			ి రాగులాను గు కో జ్కోర్లు అభివేది కొట్
C. Transport of excess tissue	fluid back into	o blood	
D. Transport of cholesterol m	nolecules into t	the blood	adisaktab atommorsik
21. Which one of the following is a	form of vegets	ative propagation?	at atamaga sept about out its
A. Spore formation B. Cor	ingation	C Pudding	ar museum australians
mphocarod Au	ijugation	C. Budding	D. Parthenogenesis
22. In which of the following parts of	of man		and the second state of th
A. Primodial germ cells	oi mammanan	testis does meiosis	occur?
A. Primodial germ cellsC. Leydig cells	. slinger	B. Seminiferous t	ubules
Z. where		D. Sertoli cells	
23. Which of the following homes	aties in their e	looped pland cépith	pelikojumi kilitri ni even su m
23. Which of the following hormonda. Secretin B. Cho	es is secreted be olecystokinin	C. Gastrin	D. Prolactin
24. Telophase I of meiosis results in	n production (ansad obusa	The assume panapang action if
24. Telophase I of meiosis results in A. four cells containing one I	homologous	gradient for gascov	Linking a stoop Lopeenaution
B. four cells containing both	homologous of	each homologous	pair
C. two cells containing one h	nomologous o	t each homologous	pair : pair as escao gaisvoji a est to
D. two cells containing both	homologous of	each homologous p	or the religious cases are in officed as
D. two cells containing both	nomologous o	t each homologous	pair O H
25. Both ATP and NADPH are prod A. in the Calvin cycle	aucea;	or out to so eather or	massic orbitations sent to sent
C in the light dependent man		B. within the leaf	Tone because:
e. in the right dependent reac	ctions	D. within the stro	ma of oblave t
26 During water street	Justin Sprif	D, corpus	bearing of and meand aug
A. carbon dioxide B. mir	neral salts	C. sunlight	to shortage of:
27 Massacra Division		3 -1, 1, 1	D. water griwolling and
27. Messenger RNA is important in A. contains the code for protein synt	protein synthe	esis because :	id to some and weight to soft
A. contains the code for protein synt	thesis	B. carries the	infi insects and those of the
C. carries the code from DNA to po	lyribosomes	D. has sites for a	le from DNA to the nucleus ttachment of amino acids
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S. L. Below is the Experience and including

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35.

A. Cytoplasm, o	produced and used in cent	B. Cytoplasm, mi		
C. Mitochondria	· -	D. Mitochondria,		
••		si esseptial umbia ad) arriknos jaivokol uusi 1 d	o no t
	of the acrosome reaction i	s to:		
A. activate the		B. improve sperm	penetration of the eggs	ાવી!
C. prevent doub	ele fertilisation of the eggs	D. improve sperm	motility	
30. Consider four hum population that will	an populations that differ d grow most in the next 30 y	emographically only years is the one with:	in their age structure. Th	ne
A. 10 – 20 year	rs B. 20 – 30 years	C. 40 – 50 years	D. 50 – 60 years	
31. For which one of the	he following diseases is mo	squito the vector?		
	iasis B. Yellow fever		D. Typhoid	
32. Which f the follow seedlings from 3 to	ving is the best method to use 6 weeks?	se for measuring the	growth rate of sorghum	
A. Fresh weigh	t B. Height	C. Dry weight	D. Number of leaves	9919 A
33. Which of the follo	wing mammalian organs ha	s both exocrine and	endocrine functions?	
		B. Stomach and sa		
C. Stomach and	The state of the s	D. Pancreas and pi	The state of the s	
34. The main value of	conservation of living orga	nisms is to:	e below shows the effect	Mai
	olutionary changes	B. allow the popul	ation to increase	
C. maintain ger	netic diversity	D. keep ecological	balance	
35. Which of the follo	owing combinations would i	esult in more energy	being fixed by	<i>E.</i>
chloroplasts for ph	otosynthesis?	No. of the second	la de	- 6
7	ntensity of long wavelength		W	3
B. Low light in	ntensity of long wavelength		Las &	
	ntensity of short wavelength			. 4
D. Low light in	ntensity of short wavelength	- Allerander	- 58 E	
36. Albinism is reces	sive to normal skin pigment	in humans. In a popu	lation where the	de
frequency of the a	lbino allele is 10% of the to		The state of the s	5
people are expecte		C 199/	D 0104	
A. 81%	B. 1%	C. 18%	D. 91%	
SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS		1 2 2 2 2 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1		
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37. Below is the list of some amino acids:

- (i) alanine
- (iv) histidine
- (ii) arginine
- (v) leucine

(iii) glycine (vi) lysine

Which of the following consists of essential amino acids?

ogenphicalité and the Beir and denough Tile

- A. (i), (ii), (iii)
- B. (ii), (iv), (v)
- C. (i), (iii), (iv)
- D. (ii), (v), (vi)

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38. The following are trisonic conditions except:

- A. Klinefelter's syndrome
- B. Down's syndrome

D. XXX female

39. Among the allopatric species of anopheles mosquitoes, some live in brackish water, some in running water and others in stagnant water. What type of reproductive barrier is most obviously separating these different species?

A. Mechanical barrier

B. Post zygotic barrier

C. Ecological isolation

D. Behavioural isolation

40. Given that two genes are linked and no crossing-over occurs between them. What would be the proportions of the F1 generation if a double recessive parent is crossed with a double heterozygous one?

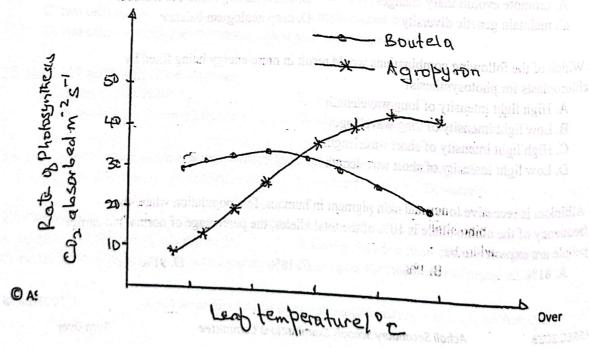
- A. 3:1
- B.9:3:3:1
- C. 1:1

elicitismil california bas online SECTION B ageo nationalism galaxol les entre es

Answers to this section should be written in the spaces provided and NOT anywhere else. D. Panersas and nimitary gland

Question 41:

The figure below shows the effect of temperature on the rate of photosynthesis of two grasses in Agropyron and Boutela.



(a) State how different the efficiency grasses.	fect of leaf temper	ature on the rat	e of photosy	onthesis in both (03 marks)
duting andward W	ten of R for red and	thed by two alle	mandal inco	worl other save t
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	UE,	make an experie	ijrt₩	
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				(a) Using the intermettion p
(eg.planka)	Ruman mathacse.	mounded me		M.A.Community (1)
(b) Giving a reason in each case				0
(b) Giving a reason in each case	s, suggest which of the	ie two grasses is l		
(i) Temperate climate			, (02 marks)
***************************************		·v.v.v.v.v.v.v.v.v.v.v.v.v.v.v.v.v.v.v.		
•••••••••••••••••••••••••••••••••••••••		***************************************	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	
(ii) Tropical climate			((02 marks)
A COLOR DE LA COLO	air municipality out			analisa ja jamen keeli santa
Titing (5X1970, 60)			ang dan dan	unataminay(orby (ii)
() T 1 : 1	the rate of all	otosumthosis in A		12
(c) Explain the effect of tempera	ture on the rate of ph	lolosynthesis in A	gropnyron. (0	3 marks)
18				
So Evoluin the sale of t	he following in terro	control regulation		
277 277 354 354 354 354 354 354 354 354 354 354				(13) 1919 -
				C. P. C.
••••••			•••••	•••••
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Otestion	44:							•									

Page 7 of 14

In sweet potato flower, colour is determined by two alleles of R for red and W for white which are it completely dominant. A population has the following individuals distributed as follows:

Flower colour	Number of individuals
Red	450
Pink	500
White	50

(a) Using the information provided, determine the:	
(i) total number of R and W alleles in the population	n. Show your working. (03 marks)
two grasses is likely to grow faster in (a):	Gwien syntann in each case, suggest which of the
(02 marks)	(u Femperate dimate
A. Given that it is not been been a self-time and an experience	
acterial sieses of	••••••
	No.
(0.2 m.m.vs)	will.
(0.2 mm/s) (0.2 mm/s)	(il) Fron'ted elimate

(ii) genotype frequency of each genotype	
(ii) genotype frequency of each genotype	(03 marks)
Asymplesis un Adrophyron. (Illa marks)	inda to signification successful to rooms as intelligible
•••••••••••••••••••••••••••••••••••••••	which is a steel our commendated to mouse my nights

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그는 사람들에 가는 것이 그 모임이 아름답지 않는데 그는 것이 그렇게 하지 않는데 하고 하고 있다면 하는데 되었다.	
(iii) allele frequencies of each allele.	•••••••••••••••••••••••••••••••••••••••
and a surface of cacif affele.	
	(02 marks)
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'03 marks)	······································	A15444444444444444444444444444444444444		
	**********	••••	CLEAS ALL ME ON	ru (di)
(b) State <u>four</u> causes of population.	change in the allele fre	quencies and genotype	frequencies in a (02 marks)	
	***************************************	•••••	• • • • • • • • • • • • • • • • • • • •	
	•••••••••••••••••••••••••	•	•••••••••••••••••••••••••••••••••••••••	
	•••••	••••••••••••	•••••••	
Question 43: (a) Explain the changes in the changes in the lowest below t	he metabolic rate of a mam ver critical temperature.	amal when the environme	ntal temperature:	
	ne digestive jui ce secretior	illostano memoroser	Part s of Canal	
	•••••	Pure pervous control Beth nervous and he	Mouth Stemach	
(ii) rises above the upper	critical temperature	lanogoodylanii	(02 marks)	
ve juice along 06 marks)	arol of secretion of digesti	tio deserved trans of con		18 (a) dt
b) Explain the role of the fo (i) Hypothalamus	llowing in temperature reg	ulation:	(03 marks)	
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irculatory system	(03 marks)
or and the contract of the con	The second secon
	oviouse has halfassed to select the season to
(02 marks)	
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A STATE OF THE STA	The search of the second section of the sec
The commence of the commence o	s: the changes in the metabode rate of a magninal when the cuvironm
ociow shows control of	f digestion along the alimentary canal of a human being.
Parts of Canal	Mechanism controlling digestive juice secretion
Mouth	Pure nervous control
Stomach	Both nervous and hormonal
Duodenum	Purely hormonal
(02 marks)	thave the control comporation
tate the significance of t	he observed trend of control of secretion of digestive juice along
e alimentary canal.	(06 marks)
	(oo marks)
	A CONTRACTOR OF THE PARTY OF TH
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	the role of the following in temperature regulation:
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	7 (*** 50) (59) (*)	
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		fraktalius wasan i
(b) Give the <u>roles</u> of t	two named hormones in stimulating the secret	on of disastive inia in
the duodenum.	- Standard of the secret	ion of digestive juices in
		(04 marks)
	and solution and solution formalist the	at x alem we
	zaucinal satomol	
	and the Autolities	
(Mari IV)	ine type of inheritages excitated.	ternade es viciliano de la
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		7(2.33)
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	ward in Mendeleev's work on genetics.	(03 marks)
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Parents	Off-springs
Black male x yellow female	½ yellow males ½ tortoise shell females
Yellow male x black female	½ black males ½ tortoise shell females
Yellow male x tortoise shell female	1/4 black males 1/4 yellow males 1/4 yellow females 1/4 tortoise females

From the data gi	iven, suggest the type of inheritance exhibited.	(01 mark)
(c) Using a Punnet shell female.	Square, predict the results of a cross involving a black	male and a tortoise (04 marks)
. db	guine Microclock's work on genesics. (03	west jud septi to i aft to o
Arra and area		
20. 21. 3		•••••
(d) Explain why tor	toise shell cats are normally females.	(02 marks)
	ുജർത്ത് യിഷ്ട തില് നിന്നു ശാര് - ഒം വരാ പ്രവാദ	ena sol cerbart moraza rel
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Question 46: (a) Distinguish between magnification and resolving power of a micro	scope. (02 marks)
	•••••
(b) In an investigation under medium power of a microscope, the num an onion leaf observed across a diameter of field of view was 100. of view as 3mm:	sher of anidomial actions
(i) Work out the average length of each cell in micrometres.	(03 marks)
••••••	
•••••••••••••••••••••••••••••••••••••••	
CVS	
(ii) The figure below shows a candidate's drawing of one of the microscope.	

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work out the magn	inication of the (drawing.organish.att	(02)	mar K.
	•••••			
	7.			

What are the advan	itages of a light a	microscope over an electro	n microscone? (03 ms	relea)
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From the that give		e of field of view was 106	profills come have	
marks)		cell in micrometres.		
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shell termile	***************************************	•••••••••••••••••••••••••••••••••••••••	••••••	•••••
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