P530/1 BIOLOGY Paper 1 AUGUST, 2024 2½ hours



JINJA JOINT EXAMINATIONS BOARD

Uganda Advanced Certificate of Education

MOCK EXAMINATIONS – AUGUST, 2024

BIOLOGY

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

Answer all questions in both sections A and B.

SECTION A:

Answers to this section must be written in the answer sheet provided at the end of this section.

SECTION B

Answers to this section should be written in the spaces provided and not anywhere else.

No additional sheets of paper should be inserted in this booklet.

For Examiner's Use Only

SECTION	Charles a month	MARKS
Section A:	1-40	at reserve where the -
Section B:	41	
	42	
	43	
	44	
	45	
	46	
TOTAL		167

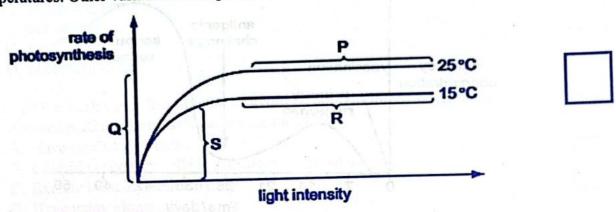
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	SECTION A (40MARKS)
1.	The initial response when bacteria enter the human body is
	A. Non-specific response and bacteria are destroyed by antibodies
	B. Non-specific response and bacteria are destroyed by phagocytes
	C. Specific response and bacteria are destroyed by antibodies
	D. Specific response and bacteria are destroyed by phagocytes
2.	Which of the following is true of cytokinesis in animal cells?
	A. Cell structures replicate
	B. Cleavage farrow forms between nuclei
	C. Nuclear envelop reforms
	D. Spindle fibres disintegrate
	그 사람들은 하시는 이 교육에 무슨데요. 그는 그는 그들은 그렇게 그렇게 그렇게 그렇게 되었다.
3.	The component of an animal's nervous system that provides the instruction for
	carrying a particular fixed action pattern is called a
	A. Innate releasing mechanism
	B. Exogenous biological clock
	C. Response chain
	D. Sign stimulus
4.	Wearing a coarse shirt causes tickling sensation but the sensation disappears. Which of
	the following is not an explanation of this observation?
	A. Supply of transmitter substances get exhausted
	B. The membrane surrounding the generator becomes less permeable to sodium ions
	C. The discharge of impulses at the afferent nerve stops
	D. Generator potential falls below threshold value
_	The diagram below shows an embryo sac from a mature ovule
5.	Which part will fuse with male gamete to form a triploid nucleus?
	Which part will fuse with male gamete to remain a
	A
	$\left(\begin{array}{c} \mathbf{Q} \\ \mathbf{Q} \end{array}\right)_{\mathbf{H}} \mathbf{B}$
	D
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eta de des els leites de l'aliantes de la
Which type of nutrition is found in purple sulphur bacteria?
A. Photoheterotrophic nutrition
B. Chemoheterotrophic nutrition
C. Photoautotrophic nutrition
D. Chemoautotrophic nutrition
D. Olicinounical P
Which of the following pairs of organisms have a cephalothorax?
A Crustaceans and diplopods
B. Arachnids and chilopopods
C. Insects and arachnids
D. Arachnids and crustaceans
Red blood cells have a diameter of 7000 nm. Pancreatic cells have a diameter of 35 µr
What is correct about the relative sizes of these cells?
A. The red blood cells are 5 times larger.
- 111 1 11 FO times larger
B. The red blood cells are 50 times sarger. C. The red blood cells are 5 times smaller.
D. The red blood cells are 50 times smaller
D. The lead blood come and
Golgi body B C mitochondrion
0. Genes P, Q, R and S are located on the same chromosome. The cross over values between them are; P-Q 24%, R-P 14%, R-S 8% and S-P 6%. What is the sequence of genes of the genetic map of the chromosome?
A. PRSQ
B. RSPQ
C. RPQS D. QRSP

water? A. Lack of food	A Photoliczentowskie acerica
	P. Chambrowtroute and J. S.
B. Insufficient oxygen supply	run i en airlemagninologii
C. Drying up of gills D. Lack of support	callifornia i disease del communità del
D. Lack of support	
2. Which one of the following correctly describes the sta	ate of the muscles in earth worm in a
region of the body that is being moved forward?	The state of the s
A. Circular muscles are contracted and longitudin	al muscles relaxed
B. Both circular and longitudinal muscles relaxed	
C. Both circular and longitudinal muscles contrac	ted
D. Circular relaxed and longitudinal muscles contract	tracted
tongitudinal muscles com	racted
3. What does a phenotypic ratio of 3:1 in a dihybrid gen	etic cross indicate?
A. Dominance	
B. Failure of homologous chromosomes to separa	ate
C. Crossing over of chromosomes	if the Let allow is backlishing of the
D. Linked genes	
14. The phenomenon in which two or more alleles in a po	onulation are maintained at levels abo
those that can be accounted for by mutation alone is	
A. Heterozygous advantage	t and files
B. Genetic polymorphism	
C. Industrial melanism	
D. Stabilizing selection	
15. The larval stage of liver flukes that encysts on the bla	ades of grass is called
A. Miracidium	e Bedgoodti
B. Redia	
C. Sporocyst	
D. Cercaria	
16. Most of the absorption of the products of digestion i	n humans takes place across
16. Most of the absorption of the products of digestors	and the late of the first state of the state
A. Ciliated epithelial tissue	-1- DEST 1-1-1
B. Squamous epithelial tissue	\$19.5% E
C. Columnar epithelial tissue	Spiral V
D. Cuboidal epithelial tissue	

17. The graph shows how the rate of photosynthesis varies with light intensity at two different temperatures. Other variables are kept the same.



In which sections of the graph is light intensity limiting the rate of photosynthesis?

- A. P and R
- B. Q and S
- C. R and Q
- D. S and P

18	Which statement	correctly	describes	the	transcrit	otion	of	DN	IA	?
10	William Statement	COLLECTION	COCTIONS	****	er cerro er el					

- A. It is a semi-conservative process.
- B. It occurs at the surface of the ribosome.
- C. It produces messenger RNA.
- D. It produces polypeptides.

19. A rat in a box learns to associate pressing a lever with obtaining food demonstrates

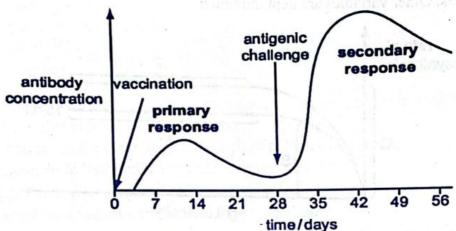
- A. Classical conditioning
- B. Habituation
- C. Operant conditioning
- D. Imprinting

20. Chemical messengers used for communication within a given animal species are called

- A. hormones
- B. genes
- C. pheromones
- D. prostaglandins

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21. The graph shows the level of antibody in serum following vaccination and a challenge with the same antigen 28 days later.



Which cells account for the difference in antibody concentration at the peaks of the primary and secondary responses?

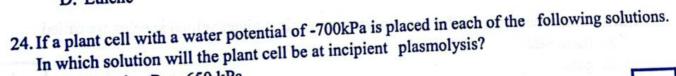
- A. B-lymphocytes
- B. memory cells
- C. phagocytes
- D. T-lymphocytes

22. In a healthy mammal, which one of the following will lead indirectly to	increased
production of glycogen in liver cells?	

- A. stimulation of the adrenal medulla
- B. a reduction in the amino acid concentration in the blood
- C. a reduction in insulin output
- D. a high glucose content in the diet

23. Which of the following would bring about wound healing if a plant is damaged?

- A. Cytokinins
- B. Gibberellins
- C. Abscisic acid
- D. Ethene



- A. Solution P = -650 kPa
- B. Solution Q = -950 kPa
- C. Solution R = -450 kPa
- D. Solution S = -400 kPa



A. thermotropism B. dominance C. venalisation D. photoperiodism 26. How do the fresh water fish like tilapia avoid osmotic influx of water across the exposed partially permeable surface of the body. A. Have smaller glomeruli B. Chloride excretory cells in gills actively expel salts C. Excrete trimethylamine oxide D. Have many glomeruli 27. Which of these ions are abundant in the sarcoplasmic reticulum? A. Calcium B. Magnesium C. Sodium D. Potassium 28. Which one of the following is not shown by a parasite that is well adapted to its mode of life A. Using more than one host B. Killing the host C. Inflicting moderate harm to its host D. Using an intermediate host 29. Which one of the following may explain why plants cannot use ATP produced during light reactions of photosynthesis as the only source of energy? A. Needs more ATP for phosphorylation of GP B. ATP cannot be produced in cells lacking chlorophyll C. ATP can easily be transported out of photosynthetic cells D. ATP can only be produced by light reactions in plant cells 30. Which of these bones is not part of the axial skeleton? A. Clavicle B. Skull C. Sternum D. Ribs	25. The promotion of flowering by exposure	to low temperatures for a period of time is known
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D. Ribs		The state of the s
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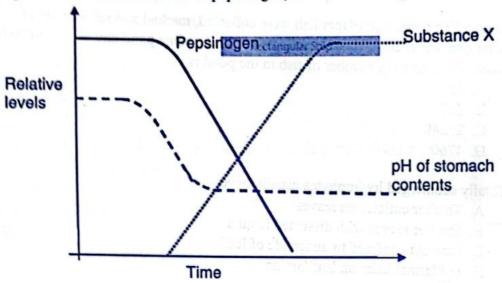
31. Passage of ova through the female reproductive tract is fa	cilitated mainly by
A. Amoeboid movement	i in Ceresia o pit for nodericang n atio
B. Ciliary movement	803
C. Muscular movement only	Zing AC Place and response and DA (AC)
D. Pseudopodial movement	
32. A person on a long hunger strike, surviving only on the w	vater will have
A. Less amino acids in urine	Maria M. Maria Dela Maria Dela Maria
B. More sodium in urine	uliabilitation soil sit shw H.
C. Less urea in urine	Edducad particly peneable
D. More glucose in urine	duramelia adiamenti
egina leggas visivinas sur se	
33. If a mother fails to produce milk in her breasts at the birt	th of her baby. Which part of the
brain in the head of the mother is affected?	To Have meny lamentifica
A. Cerebellum	enter i dem prilagona e di ca
B. Posterior lobe of the pituitary gland	ibitatirda en
C. Pineal body	minister in Africa
D. Anterior lobe of the pituitary gland	reviewment is
Promise Promise	market a
24 Which are of the following feature would next it to be	at to the development of a payy
34. Which one of the following factors would contribute lea	ist to the development of a new
species?	was pure the land for the field.
A. Environmental stability	A. Tiging yours than sow had
B. Geographical isolation	the designation is
C. Gene mutation	C. Indicting modernshipm
D. Chromosomal mutation	
35. The bacteria that coverts nitrates to nitrites during the n	itrogen cycle are an example of
A. Denitrifying bacteria	Francisco de la constanta de l
B. Decomposing bacteria	The second secon
C. Nitrogen fixing bacteria	South that and a second office
D. Nitrifying bacteria	End ATP concess by but their
	substitution of the same state.
36. The mycorrhizae on some plant roots serve to	
A. Fix nitrogen from the atmosphere	hay his already seed to delaw g
B. Absorb mineral salts from the soil	A. Curidic
C. Breakdown humus	The State of the S
D. Synthesize carbohydrates	
_, _, _,	
	- LEVAL

37. Fast-twitch fibres in atheletes are adapted to their re	oles by having
A. Large store of myoglobin and much cytochro	ome pigments
B. Slow graded contraction of long duration	through the incombine
C. Depend on aerobic respiration for ATP prod	
D. Abundance of glycogen granules	loval eviteles chi a zona, mener mir
38. From a fish pond, 140 tilapia fish were collected, n	narked and released into a fish pond.
After one week, 200 fish were collected from the s	ame pond and 34 of them carried the
mark. The estimated number of fish in the pond is	
A. 824	1 audit -
B. 659	Contragalation and Contragalation (Contragalation)
C. 23240	
D. 4760	7
39. Totally submerged hydrophytes usually have	Y.,
A. Thicker cuticles on leaves	
B. Smaller leaves with dissected lamina	
C. Stomata confined to underside of leaf	\
D. Epidermal hairs on leaf lamina	Carried and the second arrangement
(C2 market) the service to (C2 market)	He man in M. M. T. Land and the second second
40. During human embryonic development the mesod	derm germ layer gives rise to development
of	
A. Muscles, blood and skeleton	and the property of the second of the second of
B. Gut, muscles and skeleton	ereani a company
C. Skin, muscles and gut	
D. Neural tube, blood and skin	the representative country or a personal control of
pailor 300	to be level and recommend of the comment
figure in the state of the stat	British State Stat
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SECTION B (60 MARKS)

41. The contents of an animal's stomach were removed via an opening known as fistula. The contents were removed after a meal.

The graph shows the relative levels of pepsinogen, substance X and pH



(a)	Expla	ain why the pH fell as a result of the meal entering the stomach	(02 marks)
(b)	(i)	Suggest why the level of pepsinogen fell	(03 marks)
	 (ii)	Name substance X	(01 mark)
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c)	Describe the role of bile juice in lipid digestion and its absorption	(04 marks)
		•••••
		•••••
	***************************************	•••••

	and a single show positive photographs and a second to be really	••••••
	***************************************	•••••
42	a. (a) Describe how natural defence mechanisms prevent the entry of disease causing organisms in the body.	(06 marks)
	***************************************	•••••

	***************************************	•••••

	••••••••••••••••••••••••••••••••••••••	

	(b) Describe how fibrinogen protects the body from disease.	(04 marks)
		••••••
	••••••	••••••

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43.(a) G	ive four functions of gibberellins in plants.	(04 marks)
- Golu	as or bite inica individ ainestion and its absorption (04 m)	
	·	
	•••••	
		••••••
		•••••••••

- 14		••••••
	b) Explain why plant shoots show positive phototropism.	(06 marks)
0.56		
	••••••	

	***************************************	•••••
	(c) Briefly describe how and a printing in the state of	
	(c) Briefly describe how seed germination is stimulated in flowering	
		(04 marks)
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Give two reasons why maintaining a constant blood glucose concentration is important in man? (02 marks)
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when CO story and the photographic story and the story and

(b) Explain how the formation of glycogen in the liver cells leads to lowering of blood glucose concentration. (02 marks)

16 TOO THIS TO SEE THE TOTAL THE TOT
(c) Explain why glucose appears in urine of diabetic individuals. (02 marks)
••••••
••••••



	e meaning of the term primary succession		an stable and
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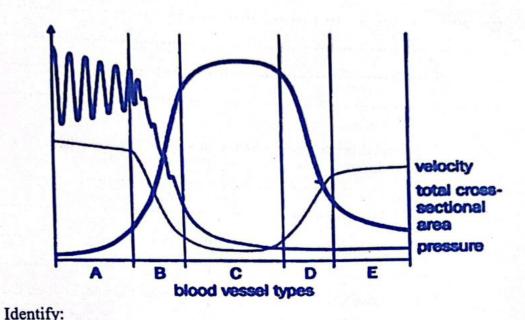
(b) Exp	plain the role of pioneer plants in successi	on on a bare rock.	(03 mar)
•••••			

	ggest two ways in which deflected success	sion in any given eco	
cau	ised.		(02 m
***************************************	•••••		
(d) Ex	plain how biomass changes during a prim	ary succession.	(03 mai

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46. The figure below shows the blood pressure, blood velocity and cross sectional area of different types of blood vessels.



(a)	Identify:						
	(i)	Blood vessels	A, B, C, D and E			(2 ¹ / ₂ marks)	
	(ii)	With a reason, muscle tissue	which of these bin its wall?	blood vessels h	nas the highest p	proportion of (1 ¹ / ₂ marks)	
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(p)	Accou	nt for:	(21/2 marks)
	(i)	The variations in blood pressure shown in vessels type A	Nation 11
•••••	•••••		
	•••••		
•••••	••••••		
	(ii)	The rapid drop in blood pressure in vessel type B	(01 mark)
	•••••		
	(iii)	The increase in blood velocity in vessel types D and E when	
		pressure is low.	$(1^1/_2 \text{ mark})$
-			•••••
			•••••
••••••	••••••		•••••
		est the significance of the relationship between blood velocity	
		l area of vessel type C.	(01 mark)
			•••••
•••••	•••••		••••
10. Wi			
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