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PAPER 1	are the state of the safety and	growers growered the confidence
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ASSHU MID- WESTERN REGIONAL JOINT MOCK EXAMINATIONS 2018

UGANDA ADVANCED CERTIFICATE OF EDUCATION

BIOLOGY

PAPER 1

2Hours and 30 Minutes the proceedings of a pries of stochood in 1924 some

INSTRUCTIONS TO CANDIDATES A LOCAL DESIGNATION OF THE PROPERTY OF THE PROPERTY

Answer ALL questions in both sections A and B

SECTION A

Answers to this section must be written in the boxes provided

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 EXAMINERS USE ONLY

SECTION A	terroritoria e dill'in	मा विकास अध्यापन तम् व्यवस्थाति । ए. ५० वर्षा स स्थिति ।
SECTION B	41	man, i a patient l'il et le section de l'
I had only	42 30	The complete state and the action of the
1		TOTAL SET BY SIGNED ON THE CASE OF
1	43	ner einenste annangliebe
	44	
	45	and taken a mor our restriction and
William Commence	46	
		E. The second
TOTAL		restel in latery

	1.	The most direct way to control the expression of genes in bacteria is to regulate the rate of (A) mRNA processing
		(b) transcription
		(C) translation of mRNA
		(D) Modification of the polypeptides into final products
	2.	Which of the following are examples of genetic drift?
		(i) founder effect
		(ii) gene effect
		(iii) Bottleneck effect
		(iv) Directional aslastica
	d.	A. (i) and (ii)
-		B. (i) and (iii)
		C. (ii) and (iv)
		D. (i), (ii) and (iii)
	2	
	ა.	Cells of the pancreas can incorporate radio actively labelled amino acids. The amino acids
_		are then found to be used in the synthesis of an enzyme that is eventually secreted by the
		cell. Which of the following is the pathway for the movement of these amino acids in the cell?
		A. ER-Golgi apparatus — vesicles that fuse with cell surface membrane
		B. ER- Golgi apparatus → lysosome
		C. Golgi apparatus → ER → Hysosome
		D. Golgi apparatus—→ER—→Vesicles that fuse with cell surface membrane
	4	A decrees in the modial resource of earliest Earliest 1. Health at the second s
	4.	A decrease in the partial pressure of carbon dioxide in the blood would cause;
		A. a generation of excitatory impulses by respiratory centre in the medulla to intercostals
		muscles and diaphragm
		B. a decrease in breathing rate
		C. a stimulation of the peripheral chemo receptors in aortic and carotid bodies D. an increase in thoracic volume
		D. an increase in thoracic volume
	_	Ovaleties does not occur during pregnancy in the human female has
	٥.	Ovulation does not occur during pregnancy in the human female because; A. menstruation does not occur during pregnancy
		B. the embryo produces large amounts of hormones that inhibit the F.S.H
		C. the blood supply to the follicles in the ovary is temporarily halted
		D. the corpus luteum and later the placenta produces large amounts of progesterone
		D. the corpus litteam and later the placenta produces large amounts of progesterone
	6	Which of the following has the lowest water potential?
	Ο.	
		A. mesophyll cell
		B. Root hair C. Endodermal cell
		D. xylem vessel in stem
		2

7. In a population where 7% of the babies are born with sign	
frequency of the babies born having heterozygous geno	type?
A. 0.005	
B. 0.389	11 12 1 2
C. 0.74	
D. 0.26	447 2008 378 Jah
8. In Eutherian mammals, the placenta is formed from the	t reduced in the contraction of
A. amnion and chorion	38 V.S.: *
	. Endquista A
B. amnion and allantois	menindens
C. chorion and allantois	- 10 Complete gards (20 J
D. allantois and Yolk sac	brougylagossa C
9. Which of the following is not true in the production of ro-	ot pressure?
A. mineral ions are actively pumped into xylem by endo	
B. ATP is required	r 7
C. water potential in the xylem is increased	
D. The casparian strip in the endodermis prevents the b	ack flow of mineral ions into the
cortex cells	
	"Unificities rubrestdoone it)
10. The heart sound "dup" which can be heard represents;	
A the flow of blood into the heart	grandeling aparets to king
B. the flow of blood from the atria into ventricles	y tarinso elleo nali logi estreo i
C. the closure of the atrio ventricular valves	
D. closure of semilunar valves	and the second of the second o
11. Genes P, Q, R and S are linked on the same chromoso	me. The following are the cross over-
values between the genes	
P and Q 38%	a ment of the state of the stat
and the account of the control of th	9 3/2/29 18 24 2 1 10 0
Q and S -16%	ne li mento le la de la
P and S -4%	at the state of the state of
The sequence of genes on the chromosome id:	. Sec. 1. Land die€tign z
A DDSO	ne Bala sentilisecemè a como
B. PSRQ	
C.QSRP	sant eto get to had it in to be seen a
D.RSQP	
	ese methods:
12. Endo parasitic organisms increase their numbers by the	300 1110111011011
(i) paedogenesis	114340
(ii) anomixix	
(iii) internal fertilization	
(iv) polyembryony	

	보유 본 이렇게서 영화하다 하나 되었다. 그리고
A (i) and (ii)	
B (i), (ii) and (iii)	
C. (i) and (iv)	
D. (ii) and (iii)	
3. An organism with more than two sets of chromosome	s derived from the same species is
known as:	and a wife to Mark
A. aneuploid	
B. amphidiploid	the state of the s
C. allopolyploid	
D. autopolyploid	
14. An action potential propagated along transverse tubu	les causes release of calcium ions from
the	
A. actin filaments	
B. myosin filaments	그램 계속으로 가락되다 생활됩니다.
C. sarcoplasm	Service to the service of
D. sarcoplasmic reticulum	
A. haemoglobin B. acetylcholine C. cytochrome-a D.myoglobin	
,	
16. Which of the following features could be used to distin	guish between earth worm (annelida)
and tape worm (platyhelminthes)?	
A. Radial symmetry and body shape	
B. Segmentation and number of germ layers in body w	vall
C. segmentation and number of body cavities	
D. pseudocoelomate and flattened body	
17. The graph below depicts insect growth	
	N L
the first the second of the se	lult
Body	
Body Weight.	
i i i	
(vi) (ii) (ii)	T
97 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	Time.

when is ecdysone secreted without neotonin? A (i) B (iv) C (iii) D (ii) 18. The cortical reaction of the mammalian eggs is important in the; A breakdown of the oocyte membrane to facilitate penetration of sperm B. breakdown of sperm membrane to release enzymes of the a crosome C. fusion of egg and sperm nuclei	
D (ii) 18. The cortical reaction of the mammalian eggs is important in the; A. breakdown of the oocyte membrane to facilitate penetration of sperm B. breakdown of sperm membrane to release enzymes of the a crosome C. fusion of egg and sperm nuclei	
A. breakdown of the oocyte membrane to facilitate penetration of sperm B. breakdown of sperm membrane to release enzymes of the a crosome C. fusion of egg and sperm nuclei	
A. breakdown of the oocyte membrane to facilitate penetration of sperm B. breakdown of sperm membrane to release enzymes of the a crosome C. fusion of egg and sperm nuclei	
B. breakdown of sperm membrane to release enzymes of the a crosome C. fusion of egg and sperm nuclei	
C. fusion of egg and sperm nuclei	
D. cortical grapular release any way that harden your pollucide	
D. cortical granules release enzymes that harden zona pellucida	
19. If there are 10 ² bacterial cells per cm ³ at early lag phase and the generation time of bacter	al
cells is 20 minutes, how many cells will there be two hours later?	_
A. 6×10^2 B. 6×10^3	
$C.6.4 \times 10^3$	
D. 1×10^7	
20. Which of the following statements is true of T- cells but not true of B-cells?	
A.They are produced by cells which originate in the bone marrow	
B. They react with antigens to produce clone of immunocytes	
C.They must pass through the thymus gland before they can become fully functional D. They have antigen receptors on their cell surface membrane	
21. Both plants and animals have haploid and diploid stages in their life cycles. How ever, only	
plants are considered to have alternation of generations. This is because only in plants;	
A. the gametophyte and sporophyte generations are free living	
B. the gametophyte and generation is haploid and the sporophyte generation is diploid C. both sporophyte and gametophyte generations are multicellular	
D. either the sporophyte or gametophyte generation may be dominant at different stage of	
its lifecycle	
22. Which of the following is not an example of genetic drift?	2.
tation of collinating plants which originate from dispersal of a single seek	1
B. A new population of sell polimetring plants that a sell solution of Gaundalupe C. The loss of genetic variety of northern elephant seals on the island of Gaundalupe D. The migration or mating of individual among populations	

23 In an experiment, a 25cm X 25cm quadrant was used to determine the density of plant Mimosa pudica in areas P and Q. The results of the experiment were as below:

Quadrat	: 4	2	3	4	5	6	7	8	9	10
Quadrat	'	-				2	1	5	0	12
Number of plants in	3	6	7	0	3	2	1	J		3
areas P	- 1 AN	r:10:	11-4	er si iki	113 9600	(110160)	07, 134		100 4	1.01
Number of plants in	3	4	3	2	1, 5,00	0	4		2 Sind	0
areas Q	DEVE 5	HW =	101	157 158	1845 . 1.1	naidr	7 - 1 J. E.		- 4691.1	9

what is the density of the plant mimosa pudica per square metre in areas P and Q

	Area P	Area Q
Α.		16 क्यांच पूर्व प्रविधा विकास मान किया विकास प्रविधानिक विकास विकास विकास विकास विकास विकास विकास विकास विकास
B.	30	20 ni owi ed escri liw ales you is woo assummed as ale
C.	48	32
D.	60	40

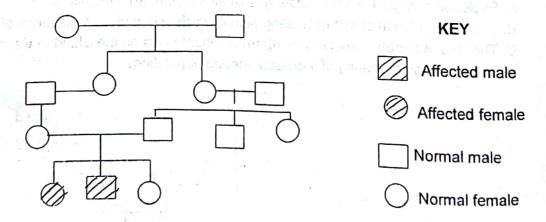
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back that your more discussed and included be one they bed become

- 24. Which of the following mechanisms can cause sympatric speciation
 - 9i) Geographic isolation
 - (ii) polyploidy
 - (iii)Hybrid inviability
 - (iv) Genetic drift
 - A. (ii) and (iii)
 - B.(i), (ii) and (iv)
 - C. (ii), (iii) and (iv)
 - D. (i), (ii), (iii), and (iv)
- 25. Which of the following pairs does not correctly match the cell type with its function?
 - A. Macrophage → ingest bacteria
 - B. plasma cell produce antibodies
 - C. Helper cell ----- cause lysis of infected cell
 - D. Memory cell —— divides to produce instantaneous response in secondary infections
- 26. The pedigree below shows the inheritance of a disease



	The inheritance of the disease is controlled by:		
	A autosomal recessive gene	prof	1
	B. autosomal dominant gene		7
	C. X linked recessive gene	* ** · : .	
	D. X linked dominant gene		
	2 ·		, i(_{1,1} ±12 '
27	. Which of the following statements are true of the	placenta	
	(i) it is formed after the first trimester		
	(ii) it is composed of foetal and maternal tissues		
	(iii) it synthesizes and secretes gonadotropins		
	(iv) it is attached to uterine wall by the umbilical co	Service of the control of the back	1 1 1 1 1 1 1 1 1 1 1 1 1
	(A. (i) only		alauKhiya I
	B. (ii) only		
	C. (ii) and (iii) only	edit i di je se	
	D. (i), (ii) and (iv) only	ACCURATE A CONTRACTOR OF THE C	
	The diagram below shows a simplified scheme of	electron transport system	1
28	. The diagram below snows a simplified scheme or	Clour on trainer and	
	Oxidation reaction	age of the state of the	. , , : āfi
	Oxidatio		- Jan. 7, 113
1	2e		: · · ·
		2H ⁺	
-	X —		averteet to PoOto
		*	er y Qr.
	X - oxidized		e activities (Activities
		XH ₂	i maria A
			and Alberta
	2.5		ne de
	260 211	garagha dhe an dhe	
	www.scheme X represents:		
		and the second of the second	
	A, FAD		
		· Long B · B. and of The	
	A	u st. mada nºCouz sahiq-	
	•	metan adams, a co	
a	Which of the following is true concerning aldostero	ne? « « « « « « « » » » « » » « » « » » « » « « » « » « » « » » « » « » « » « » « » « » « » « » « » « » « » « » «	5 1 × 211 - 3
. 0	Which of the following is true concerning aldosterol A. it increases secretion of angiotensinogen B. It is produced by the juxtaglomerular complex armeability of renal tubes to was	ace y in the Same of the Again, in the	a saran san
	B. It is produced by the juxtagionistic to was	stor story	in he men !
	B. It is produced by the juxtagiomerdial complex. C. it increases the permeability of renal tubes to wa	Leollecting ducts	g ⁴ • • • • • • • • • • • • • • • • • • •
	C it increases the permeability of renal tubes to we D. It increases the sodium reabsorption in DCT and		9 A. C. &
			deleter J
			ima ar i k

	30 Iri which of the following parts of the mammalian testis does meiosis occur?
•	A. primordial germ cells
	B. seminiferous tubules
	C. leydig cells
	D. Sertolic cells
. 4	11. The electron transport chain in the inner membrane of mitochondria and thylakoid membran
	of the chloroplast is coupled directly with;
	A. production of organic molecules
	T windless CNADU
	C.reiease of carbondioxide
	D. synthesis of ATP
	S. Symmocie S. A. T.
. :	2. The diagram shows part of a single strand of DNA
	——————————————————————————————————————
	G C A A STATE A
4	How many hydrogen bonds are required to link base pairs when both complementary
	strands are present
	A. 6
	B.28
	C.32
	D.14
3	3. Which one of the following is the link reaction in respiration?
	A. glucose glyceraldehydes-phosphate
	B. pyruvate → lactate
	C. pyruvate acetylCoA
	D. Citrate — α - ketoglutarate
3	4. What is the next stage after acetylcholine has attached to its receptors at the sarcolemna?
	A. calcium ions bind to troponin
	B. calcium ions are released from the sarcoplasmic reticulum into sarcoplasm C. voltage –gated sodium channels open
	D. Actomyosin cross bridges are formed
3	5. What is the name given to the route taken by lactate produced in the skeletal muscles to the
	liver where it is converted into glucose.
	Lactate in muscle → pyruvate → glucose
	A. Calvin cycle Soun and reflect and 1916 month poetices in the service and the service of the s
	B. Krebs cycle
	C. ornithine cycle
	D. Cori cycle

36. When the blood is convoluted tubules		the corrective mechanisms are carried out in the di	stal
		ociate to hydrogen phosphate phosphate ions and	
hydrogen ions			. n
(ii) Tubule cells se	crete H⁺ ions into	tubule lumen	
(iii) HCO ₃ and Na	ions are transpo	orted into blood in the capillaries	
(iv) NH₃diffuses in	to the blood to for	m ammonium salts	-18.28
A. (i) and (ii)	polityone	an absence of the section of the shade	
B. (i) and (iii)		து செய்து தரிக்காற்ற முறைக்கும் நடிகள் கொழிகே	
C.(ii) and (iii)	and the same of		
D.(ii) and (iv)	The state of the s		
		and the second s	
37. If the respiratory e	nzymes of two di	fferent species whow extensive similarity in their a	nino
acid sequence, the	en it may be cond	cluded that the two species;	
A. belong to the sa	ame genus	The state of the s	ij.
B. have the same	genes that code	for the respiratory enzymes	H
C. are capable of	interbreeding	Service Manager of the Line Control of the Lin	1
D. evolved from a	common ancesto		
			1
38. When Drosophila	a flies heterozygo	ous for size of wings and body color were crossed	vitn
		bodies , the F ₁ offspring obtained were as follows	
Normal wing , gre			
vestigial wing,gre			
Normal wing, ebo			١.
vestigial wing, eb	- A	What was a second monthly and a second or seco	
What is the cross	over value?		
A. 8%	. 44	the representation of the second second second	
B.9%		man for the company of the State of the Company of	in b
C.17%		2 32 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
D. 20%	**	₩	Har)
valida e de la falla	wing dosesibes o	onditions in a mesophyll cell of a CAM plant expos	ed to
high light intensit	wing describes o	2	
high light intensit	y during day time		
	Concentration	on of	-13.1
Carry Marketta	Malate	Glycerate phosphate	~
Oxalo acetate	Maiate	Siyosiate pinospinose	
A Uigh	High	High	2 19
A. High	High High	High Low	
B. High	High	Low	
		the same of the sa	

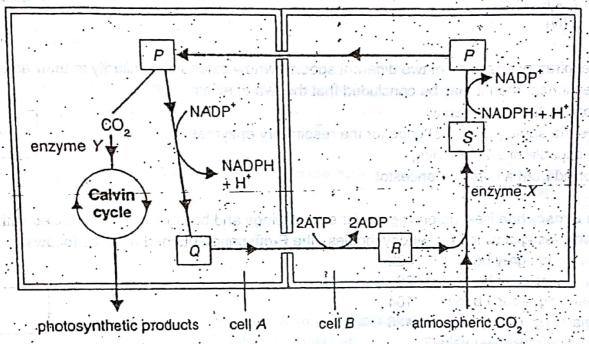
40. The process of vegetative change as a result of destruction of a climax vegetation is called?

A. primary succession
B. secondary succession
C. pioneer plants
D. plagion climax succession

SECTION B (60 MARKS)

Answer all questions in this section in the spaces provided

41. The diagram below shows an outline of the main stages in the Hatch and Slack



(a) Give the name o	of cell A and B			(1 mark)
Cell A				0 11 0
Cell B				#45° Q
(b(i) Name the enzy	mes X and enzym	ne Y Doma nicialty hybodan	aseri, españo de	(1 mark)
Enzyme X		Sagr	at the process we	maini "dgo egid
enzyme Y(ii) State three diffe	ronces between th	e mode of action of	enzyme X and	enzyme Y (3marks)
		eville.		
	7.00	ways 1	rtos i La	rini 4 T
		- dgirif	6413-1	West at 12.5
		West \$6	.4014	wga.

(c) (i) Name the substances P, Q, R and S	errenge, postigor en es (02 marks)
P	
Q	
Restate to a second control and a special process.	
S	
(ii) Explain the importance of Hatch and slack pathway	
(Assume)	
*	
(d) Describe the part played by reduced NADP in the light	· · · · · · · · · · · · · · · · · · ·
(u) Booolibo and part played by readers	
chan is indresentan a planta linar in samula is man	
2. In plant genus <u>spartina</u> contains a number of species.	Hybridisation between spartina
alterniflora (2n=62) and spartina maritima (2n=60)	has produced a F ₁ sterile hybrid
spartina townsendii.	
(a) What is meant by:	
(i) Hybridisation?	(1 mark)
or the burbeid	(1 mark)
a gwenter in all it commen	A LO SINISPENSION AND THE STREET
(b)(i) Explain why the F ₁ hybrid cannot reproduce sexu	ally (2 marks)
(D)(I) Explain.	

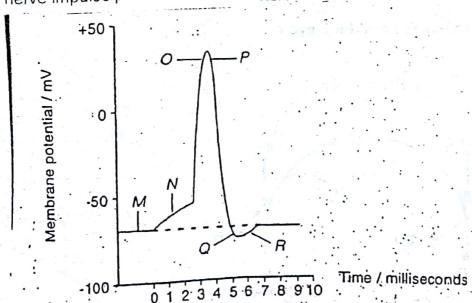
(c) chromosomal change has occurred naturally in the F1 hybr	rid and a fertile F₂ tetraploid
plant spartina anglica is produced	
(i) Describe briefly with aid of a diagram the chromosomal cha	inges that may have occure
produce fertile grass	(3 mark)
	<u> </u>
	· · · · · · · · · · · · · · · · · · ·
Charles and arrest his harmon, as the map has perfectly promited and an entire	ni amai
(d) Give two reasons why polyploidy is more common in plants	s than in animals(2 marks)
(d) Give two reasons why polyploidy is more common in plants	
(a) Give three ways in which a frog and mammal differ structu	rally from each other
	rally from each other
(a) Give three ways in which a frog and mammal differ structu	rally from each other
(a) Give three ways in which a frog and mammal differ structu	rally from each other
(a) Give three ways in which a frog and mammal differ structu	rally from each other
(a) Give three ways in which a frog and mammal differ structu	rally from each other (3 marks)
(a) Give three ways in which a frog and mammal differ structu	rally from each other (3 marks)

(ii) Development of coelom

(3 marks)

(2 marks) (iii) Body segmentation

44. The diagram below shows the changes in potential difference across an axon membrane as a nerve impulse passes along it



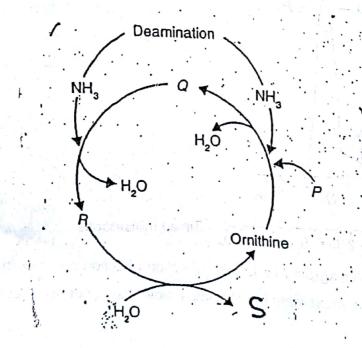
(a) Draw an arrow on the diagram to show the direction of action potential in the axon

(b) Explain in terms of ion movement the change in potential difference that takes place at N,

O, P and Q.

n) N			(2 marks)
		Xar	อูสน์สาราจิการใหม่จาก
(ii) O			(2marks)
		ogelo va i	i i e e e e e e e e e e e e e e
(iii) P			(2 marks)
	V-19-1-1		
			the state of the s
			The state of the s
(iv) Q			(2 marks)
(c) State what happens at point R	? !?	ene. Guado o tot guare	(1 mark)
		Lynn Faret	

45. The diagram below shows the ornithine cycle



(a) What do substances P,Q an	d R represent?	(1 /2 Illains)
Q Part El		
R		(5 los ed.s)
(b) Outline the major steps invo	lved in the formation of substan	ce S (5 marks)
		and the second s
	acrea by source and for more use of	
(c) State two advantages of exc	creting substance S instead of a	All III Comments
Tunatak	astes do not normally occur in pl	ants? (2 marks)
(d) Explain why nitrogenous wa	astes do not normally occur in pr	n ison along a trail Whi
	ed in an investigation of factors a	iffecting mortality of two
The larvae C	Il Species I cat the loaves of sai	obage plants while the larvae
of species Q feed on leaves of	I IIIE IIIustala Plant.	to the end of each stage as a
	percentage of the number ente	
	Species P	Species Q
Stage of life history	90	92
Instar 2	95	89
Signarday Out See	80	75
4	66	72
5	48	64
The second secon	65	70
Prepupal	79	63
Pupa		

	S. Show your working and give a	answers correct to nearest whole
ımber		(3 marks)
		CK LOW TO BELL EST SIDERROY (CIT
		<u></u>
		<u> </u>
o)(i) What is the percentage s	survival of the larvae of species F	at the end of the 5 th instar?
ROBURD BERTHURS IN	excreting substance \$ ristend.	(1 mark)
		Control of the second of the s
	The state of the s	
	f larvae of species Q at the end o	
(ii) The percentage survival of		of the 5 th instar is about
(ii) The percentage survival of 28%.Compare the survival ra	f larvae of species Q at the end of the tes up to this stage of both species	of the 5 th instar is about es (1 mark)
ii) The percentage survival of 28%.Compare the survival ra	f larvae of species Q at the end of tes up to this stage of both specie	of the 5 th instar is about es (1 mark)
ii) The percentage survival of 28% Compare the survival ra	f larvae of species Q at the end of the thick species of both species	of the 5 th instar is about es (1 mark)
ii) The percentage survival of 28% Compare the survival ra	f larvae of species Q at the end of the thick species tes up to this stage of both species	of the 5 th instar is about es (1 mark)
(ii) The percentage survival of 28% Compare the survival ra	f larvae of species Q at the end of the two species	of the 5 th instar is about es (1 mark)
ii) The percentage survival of 28% Compare the survival rate (c) State two differences in the stages	f larvae of species Q at the end of the two species	of the 5 th instar is about es (1 mark)
ii) The percentage survival of 28% Compare the survival rate (c) State two differences in the stages	f larvae of species Q at the end of tes up to this stage of both species Q at the end of the two species Q at the end of the end	of the 5 th instar is about es (1 mark) cies at the prepupal and pupal (2 marks)
ii) The percentage survival of 28%. Compare the survival rate (c) State two differences in the stages	f larvae of species Q at the end of tes up to this stage of both species Q at the end of the two species Q at the end of the end	of the 5 th instar is about es (1 mark) cies at the prepupal and pupal (2 marks)
ii) The percentage survival of 28% Compare the survival rate (c) State two differences in the stages	f larvae of species Q at the end of tes up to this stage of both species are survival pattern of the two species	of the 5 th instar is about es (1 mark) cies at the prepupal and pupal (2 marks)
ii) The percentage survival of 28% Compare the survival rate (c) State two differences in the stages	f larvae of species Q at the end of tes up to this stage of both species are survival pattern of the two species.	of the 5 th instar is about es (1 mark) cies at the prepupal and pupal (2 marks)
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