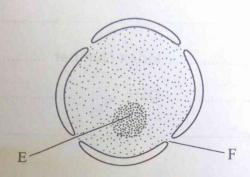
## SECTION A (40 marks)

Answer all the questions in this section in the spaces provided.

1. The diagram below represents a nucleus.



(a)	Nam	ne the structures labelled E and F.	(2 marks
	(i)	E	
		F	
	(ii)	State the function of F.	(1 mark
		es abouté chack chi quespon papel la sacentam that all the popes all	
		sessioned answers till the questions in Englishers	
	(iii)	With reference to the nucleus, state one difference between an anima bacterial cell.	
			••••••••••
		***************************************	

	(C)			
	(i)	that stores chlorophyll		(1 mark)
	(ii)	responsible for intracellular diges	tion.	(1 mark)
		ing books shedle savarane.		
:)		two main functions of the vacuole		(2 marks
		n state IVI nome to regard a		
he ta	ible be	low shows variations in the form c	arbon (IV) oxide is transpo	rted in the blood at
est an	nd duri	ng physical exercise.	n sound all camballi wor	
		Carbon (IV) oxide transport in blo	od plasma at rest and durin	a evercice
				ig exercise
Form	of tra	nsport	Rest (Mol/l)	Exercise (Mol/l)
		nsport arbon (IV) oxide	0.52	Exercise (Mol/l) 0.97
Disso Bicar	lved c	arbon (IV) oxide	0.52 12.34	Exercise (Mol/l) 0.97 13.68
Disso Bicar	lved c	arbon (IV) oxide	0.52	Exercise (Mol/l) 0.97
Disso Bicar Carbo	bolved condition (IV	arbon (IV) oxide	0.52 12.34	Exercise (Mol/l) 0.97 13.68

(b)	Account for the high total plasma content of carbon (IV) oxide during exercise	es. (3 marks)
(c)	State how one's involvement in the exercises affects blood pH.	(2 marks)
(d)	Name the protein responsible for the transport of carbon (IV) oxide in the block	od. (1 mark)
The solut	diagram below illustrates the appearance of a plant cell after it had been put in a tion.	certain
(a)	Explain the appearance of the cell at the end of the treatment.	(3 marks



(b)	Expla	ain the results obtained if a red blood cell is subjected to the same treatment	ent. (3 marks)
		The state of the s	
(c)	Expla	nin why transfusion with distilled water is <b>not</b> recommended for a dehydrat.	rated (2 marks)
	A		
(a)	Expla	ain how the sex of a male child is determined in human beings.	(2 marks)
(b)	(i)	Define the term diploidy.	(1 mark)
		Lanes of sorting of each bond of sold and an earlier to expensive a part of each of the ea	jdi
	(ii)	Name the type of cell division that gives rise to diploid cells.	(1 mark)
	(iii)	Name the type of cells in which the process named in (b) (ii) above occur	ırs. (1 mark)



		(iv) State the significance of diploidy.	(2 marks)
			***************************************
	(c)	Name the hormone responsible for the development of secondary sexual characteristic in human males.	eteristics (1 mark)
5.	In be	eans, the gene for purple colour is dominant over the gene for white colour. A pure plant with purple colour was crossed with a heterozygous bean plant.	breeding
	(a)	Using the letter P to represent the gene for purple colour, work out the genotype the offspring.	ic ratio of (5 marks)
		The sex of armal explicits determined in the many leading of the sex of the s	
		(i) Akindik erisi sid andusk (ii) kakindik erisi sid andusk (iii)	
	(b)	State two advantages of using genetically modified varieties in bean farming.	(2 marks)
		valt Name the type of belt display tiping it is the local field wills.	
(	(c)	State how in-breeding leads to reduced hybrid vigour.	(1 mark)

## SECTION B (40 marks)

Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

In an investigation, two potted plants G and H belonging to the same species were exposed to increasing light intensities at different temperatures, 30°C and 20°C respectively. The rate of photosynthesis was measured for each plant and results recorded as shown in the table below:

Light intensity (in arbitrary units)	1	2	3	4	5	6	7	8
Rate of photosynthesis for plant G at 30°C	0	84	148	196	232	260	284	296
Rate of photosynthesis for plant H at 20°C	0	72	115	148	170	186	204	216

(a) On the same axis, plot graphs of rate of photosynthesis against light intensity for plants
(8 marks)

(b)	State	the aim of the investigation.	(1 mark)
(c)	Acco	unt for the difference in the rate of photosynthesis in the two plants.	(3 marks)
(d)	Acco	ount for the difference in the rate of photosynthesis in the two plants betwing light intensities:	tween the
	(i)	1–4 units	(2 marks)
		The state of the s	
	(ii)	4–8 units.	(2 marks)
(e)	(i)	Predict the rate of photosynthesis at light intensity of 16 units.	(1 mark)
	(ii)	Give a reason for your answer in (e) (i) above.	(1 mark)
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	(f)	State one internal and one external factor that could be limiting in the investig	gation. (2 marks)
			****************
		Control to the Control of the Contro	
7.	Expla	in the importance of protecting the forest ecosystem with reference to the follow	wing:
	(a)	climate change	(20 marks)
	(b)	biodiversity	
	(c)	biotechnology	
	(d)	water conservation	
	(e)	pollution.	
8.	Descr	ibe how the mammalian eye is structurally adapted to its function.	(20 marks)
	1		
			What state of the