Coordination and Response

Question Paper 6

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Coordination and Response
Paper Type	(Extended) Theory Paper
Booklet	Question Paper 6

Time Allowed: 65 minutes

Score: /54

Percentage: /100

Fig. 2.1 shows a section through the eye with a ray of light passing through it and four muscles labelled **A**, **B**, **C** and **D**.

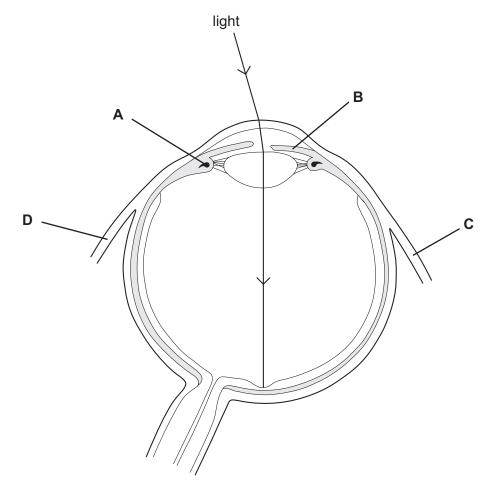


Fig. 2.1

(a) Complete the table.

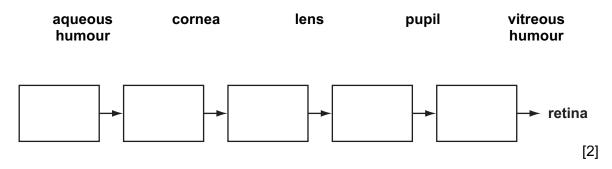
part	name of muscle	effect of contraction
A		allows the lens to become fatter for focusing on close objects
В	iris circular muscle	

Muscles ${\bf C}$ and ${\bf D}$ are voluntary muscles that are antagonistic. They are attached to the eye socket of the skull.

(b)	(i)	Explain the terms voluntary and antagonistic.	
		voluntary	
		antagonistic	
			[2]
	(ii)	Suggest the effect on the eye when muscle C contracts.	
			[1]
((iii)	Explain how the eye would return to its original position after this contraction.	
			[2]

(c) Light passes through parts of the eye to reach the retina.

Complete the flow chart by putting the following terms in the boxes to show the correct order that the light passes through them.



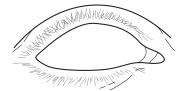
(d) The retina contains rods and cones.

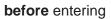
Complete the table to distinguish between rods and cones.

	type of light detected	distribution in the retina
rods		
cones		

[Total: 13]

- 2 Jasmine went into a dark room from a bright corridor.
 - (a) Fig. 4.1 represents Jasmine's right eye before and after entering the dark room.







a few seconds after entering

[Total: 10]

Fig. 4.1

	(i)	Coi	mplete Fig. 4.1 by	drawing the	appearance o	of the pupil ar	nd iris	
		1.	before entering th	ne dark room	,			[1]
		2.	a few seconds af	ter entering tl	ne dark room.			[1]
	(ii)	Lab	el the following pa	arts of the eye	on the first d	liagram in Fig	j. 4.1.	
			iris		pupil		sclera	[3]
(b)	Exp	olain	how the size of the	e pupil was c	hanged when	Jasmine we	nt into the dark	k room.
								[2]
(c)	Exp	olain	why Jasmine coul	d see shapes	s but not colo	urs in the dar	k room.	
								[3]

3 Fig. 3.1 shows part of the thoracic and abdominal cavities of a human.

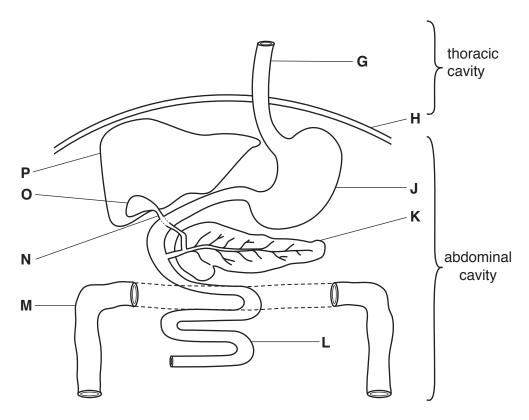


Fig. 3.1

(a) (i) Name the structures labelled G, H and M.

G	
Н	
M	
IVI	[3]

(ii) Table 3.1 shows five functions of organs in the abdominal cavity.

Complete the table by:

- naming the organ that carries out each function
- using the letters from Fig. 3.1 to identify the organ named.

One row has been completed for you.

Table 3.1

function	name	letter from Fig. 3.1
conversion of glucose to glycogen		
secretion of insulin and glucagon	pancreas	К
absorption of products of digestion		
storage of bile		
chemical digestion of protein in an acidic pH		

[4]

(b) Fat is particularly difficult to digest as it is not water soluble and forms spherical globules in the alimentary canal.

Fig. 3.2 is a diagram showing what happens to fat globules when mixed with bile.

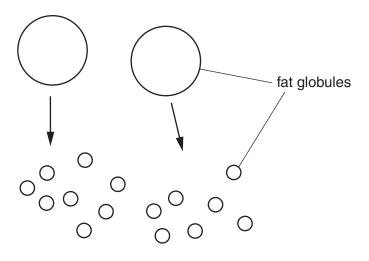


Fig. 3.2

(i) Name the process shown in Fig. 3.2.

_____[1]

(i	ii)	Explain the adva	antage of the process show	n ii	n Fig. 3.2.	
						[2]
		lin and glucagon ose in the blood.		/ th	e pancreas to control the co	ncentration of
((i)		3.2 to show how the uptake lood respond when the two		f glucose by cells and the cor rmones are secreted.	ncentration of
		Use the words in	ncreases, decreases and s	tay	s the same to complete the ta	able.
			Table 3.2			
		hormone	uptake of glucose by cells	5	concentration of glucose in the blood	
		insulin				
		glucagon				
						[2]
(i	ii)	State another ho	ormone that influences the	cor	ncentration of glucose in the b	olood.
						[1]
		lain why the cont lback.	rol of the concentration of g	lluc	cose in the blood is an examp	le of negative
(i (d) E	ii)	bormone insulin glucagon State another home lain why the cont	lood respond when the two ncreases, decreases and stable 3.2 uptake of glucose by cells ormone that influences the	ho tay	concentration of glucose in the blood	able.

[Total: 16]

Some students investigated the breathing of a 16-year old male athlete. Fig. 3.1 shows the pattern of his breathing for 60 seconds when resting. Fig. 3.2 shows the pattern of his breathing while he took some exercise for 60 seconds.

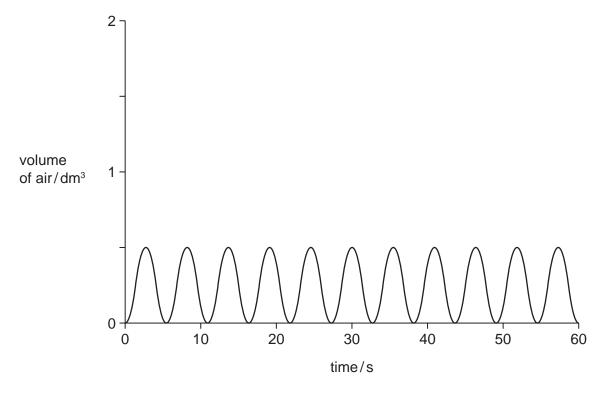


Fig. 3.1

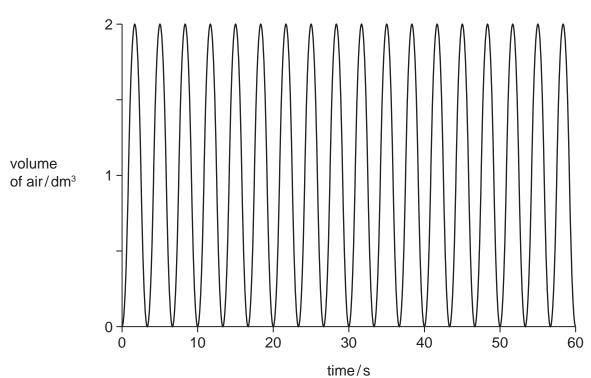


Fig. 3.2

Table 3.1 shows a summary of the results obtained by the students.

(b) Using information from Fig. 3.2, complete Table 3.1.

Table 3.1

	breathing at rest	breathing during exercise
volume of air breathed in with each breath / dm ³	0.5	
rate of breathing / number of breaths per minute	11	
volume of air breathed in per minute / dm³	5.5	

Write your answers in Table 3.1. [3	,]
Explain the effect of exercise on the student's breathing.	
	••••
	••••
	••••
	••••
	••••
	••••
	••••
	••••
	Explain the effect of exercise on the student's breathing.

[5]

d)	During strenuous exercise, the hormone adrenaline causes changes in the pulse rate and in the concentration of glucose in the blood.
	Explain the importance of these changes during strenuous exercise.
	pulse rate
	concentration of glucose in the blood
	[5]
	[Total: 15]

[Total: 15]