

14. Coordination and response

14.3 Hormones

Paper 3 and 4

Marking Scheme

Q1.

(a)(i)	homeostasis ;				1		
(a)(ii)	name of endocrine gland	letter from Fig. 5.1	hormone gland secretes	one function of hormone	6	<p>A (adrenaline) increases blood glucose concentration ;</p>	
	testes	G ;	testosterone ;	development of secondary sexual characteristics during puberty			
	pancreas	H ;	insulin	decreases blood glucose concentration ;			
	adrenal (gland) ;	E	adrenaline	increases breathing rate / increases heart rate / increases pupil diameter ;			
(b)	in the blood ;				1	A in the plasma	
(c)(i)	type of control	speed of action	duration of effect	2		one mark per column	
	nervous	fast(er) / AW / instant	short(er)				
	hormonal	slow(er)	long(er)				
					;		
(c)(ii)	sensory / relay / motor, (neurone) ;				1		

Q2.

(b)(i)	change in the genotype		2 R each additional tick
	decreased breathing rate		
	development of lung cancer		
	increased pulse rate	✓ ;	
	widened pupils	✓ ;	

(b)(ii)	adrenal (gland) ;	1	
(b)(iii)	(in,) blood / plasma ;	1	
(c)	testosterone ; oestrogen ;	2	either order
(d)	pancreas ;	1	
(e)	<i>smallest</i> DNA molecule cell tissue organ <i>largest</i> organ system	2	1 mark for DNA and organ system in correct place 1 mark for cell, tissue and organ in the correct order.

Q3.

(a)	electrical ; neurones ;	2
(b)	hormone	4
	adrenaline ;	
	insulin	
	oestrogen	
	testosterone ;	
(c)	letter X drawn on one of the adrenal glands ;	1
(d)(i)	<i>any two from:</i> breasts grow ; hips widen ; menstruation ;	2
(d)(ii)	growth of hair under armpit / growth of pubic hair ;	1

Q4.

(b)(i)	chemical ; gland ; blood / plasma ;	3	
(b)(ii)	increased rate of breathing ; increased, pulse / heart, rate ; widening of pupils ; AVP ;; e.g. more glucose in the blood / more alert	2	
(b)(iii)	<u>adrenal</u> (gland) ;	1	

Q5.

(c)	<i>any two from:</i> more rapid ; short-lived effect ; localised / AW ; transmission of (electrical) impulses ; (transmission is through) neurones / nerve cells ;	2	A ora for hormonal control throughout, i.e.: slower (some may have) long-lasting effect widespread / AW hormones are chemicals transmission through the, blood / circulatory, system
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Q6.

(a)(i)	chemical substance produced by a (endocrine) gland ; carried by the blood ; alters the activity of specific target organs / AW ;	3	
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Q7.

(a)	chemical substance produced by a (endocrine) gland ; carried by the blood ; alters the activity of specific target organs / AW ;	3	
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