14. Coordination and response

14.3 Hormones

Paper 3 and 4

Question Paper

Paper 3

Questions are applicable for both core and extended candidates

1 **(a)** The human body must maintain a constant internal environment.

(i) State the term used to describe the maintenance of a constant internal environment.

..... [1]

(ii) Secretion of hormones by endocrine glands is one way that a constant internal environment is maintained.

Fig. 7.1 shows the locations of some endocrine glands and some organs in the human body.

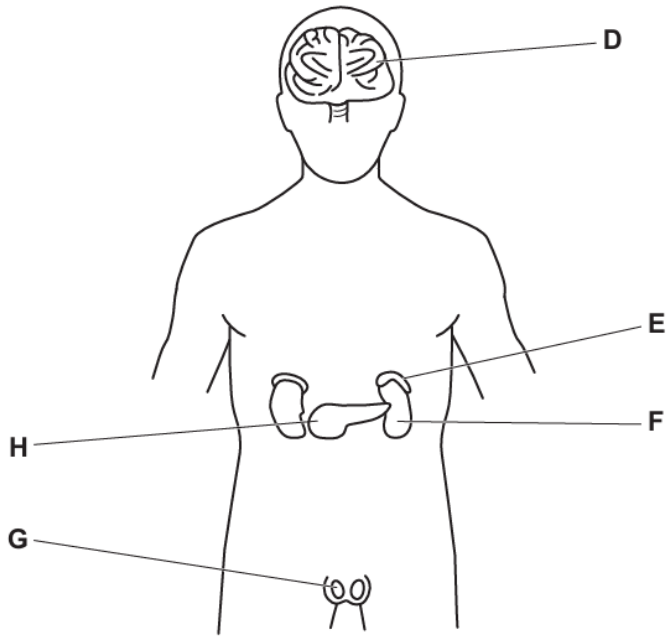

Fig. 7.1

Table 7.1 shows some of the names of the endocrine glands, the hormones they secrete, their functions and their letters from Fig. 7.1.

Complete Table 7.1.

Table 7.1

name of endocrine gland	letter from Fig. 7.1	hormone secreted by gland	**one** function of hormone
testes			development of secondary sexual characteristics during puberty
pancreas		insulin	
	E	adrenaline	

[6]

(b) State how hormones secreted by an endocrine gland reach their target organ.

..... [1]

(c) **(i)** The nervous system also helps the body to maintain a constant internal environment.

Complete Table 7.2 to compare nervous and hormonal control.

Table 7.2

type of control	speed of action	duration of effect
nervous		
hormonal		

[2]

(ii) State **one** type of neurone found in a reflex arc.

..... [1]

2 **(b)** One effect of the release of the hormone adrenaline is to increase blood glucose concentration. This allows more aerobic respiration to occur.

(i) Place ticks (✓) in the correct boxes to show other effects of the release of adrenaline on the body.

change in the genotype	
decreased breathing rate	
development of lung cancer	
increased pulse rate	
widened pupils	

[2]

(ii) State the name of the gland that releases adrenaline.

..... [1]

(iii) State how adrenaline is transported to its target organs.

.....

..... [1]

(c) State the names of **two** hormones involved in the development of secondary sexual characteristics in humans.

1 .....

2 .....

[2]

(d) State the name of the organ that secretes the hormone insulin.

..... [1]

(e) Organs, tissues and specialised cells are structures in the body that perform a particular function.

Write these parts of the body in order of size from smallest to largest.

cell **DNA molecule** **organ** **organ system** **tissue**

smallest .....

.....

.....

.....

largest .....

[2]

3 **(a)** A student wrote an incorrect definition of the term *hormone*.

The student's incorrect definition is shown in Fig. 6.1.

> *A hormone is an electrical substance, produced by a gland and carried by the neurones, which alters the activity of one or more specific target organs.*

Fig. 6.1

Identify the **two** incorrect words in the student's definition.

1 .....

2 .....

[2]

(b) Table 6.1 shows the names of some hormones and the glands where they are secreted.

Complete Table 6.1.

Table 6.1

hormone	gland
	adrenal
insulin	
oestrogen	
	testes

[4]

(c) Fig. 6.2 shows the position of some of the organs and endocrine glands in the body.

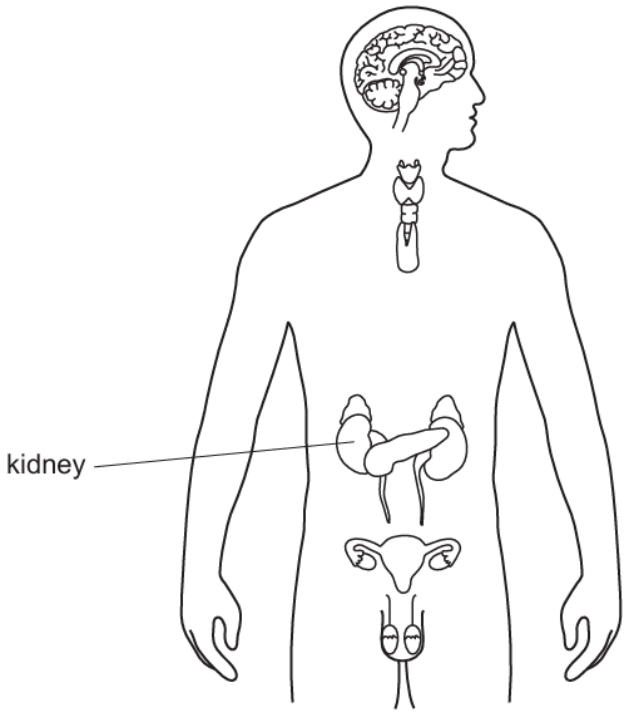

Fig. 6.2

Draw an **X on** Fig. 6.2 to identify an adrenal gland. [1]

(d) The list in Fig. 6.3 shows some of the changes that occur in boys and girls during puberty.

breasts grow	hair grows in armpits	pubic hair grows
hips widen	menstruation	testes grow

Fig. 6.3

(i) State **two** changes that occur in girls **only** from the list in Fig. 6.3.

1 .....

2 .....

[2]

(ii) State **one** change that occurs in **both** boys and girls from the list in Fig. 6.3.

..... [1]

[Total: 10]

4 **(b)** The menstrual cycle is controlled by hormones.

(i) Complete the sentence to define the term *hormone*.

A ..... substance produced by a ..... ,

carried by the ..... , which alters the activity of one or more specific target organs. [3]

(ii) Adrenaline is a hormone involved in 'fight or flight' situations.

Describe **two** effects of adrenaline on the body.

1 .....

.....

2 .....

..... [2]

(iii) State the name of the organ that produces adrenaline.

..... [1]

Paper 4

Questions are applicable for both core and extended candidates

5 **(c)** Describe **two** ways nervous control differs from hormonal control.

1 .....

.....

2 .....

.....

[2]

6 The liver is an important organ in many processes.

(a) The liver responds to changes in insulin concentration.

Insulin is a hormone.

(i) Define the term *hormone*.

.....

.....

.....

.....

.....

.....

.....[3]

7 Insulin is a hormone that regulates the concentration of glucose in the blood.

(a) Define the term *hormone*.

.....

.....

.....

.....

.....

..... [3]