

Low Demand Questions

QUESTIONSHEET 1

(a) Which two of the following organs are parts of the nervous system? Circle two organs.

heart brain lungs arteries nerves veins skin [2]

(b) Name the organ in which you would find receptors sensitive to

(i) light.
..... [1]

(ii) sound.
..... [1]

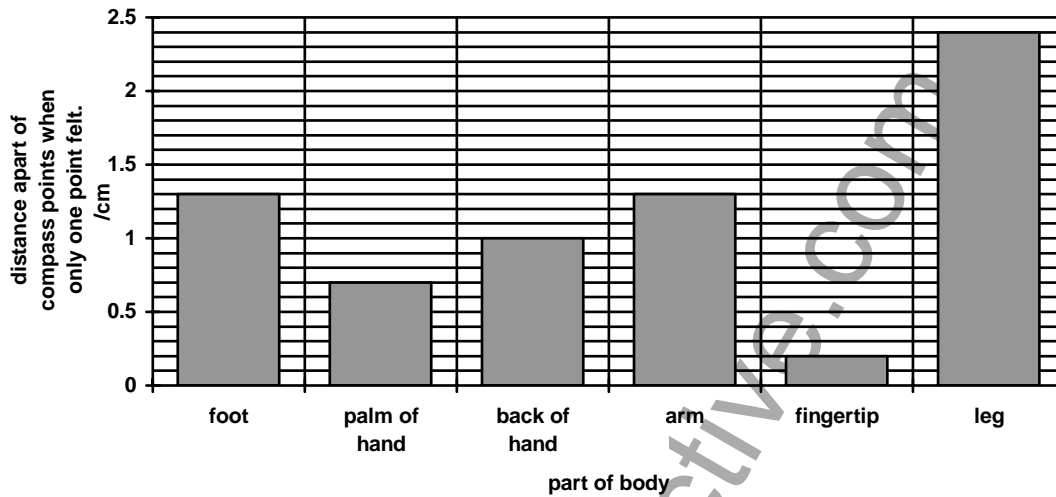
(iii) touch.
..... [1]

(c) Name two body organs which contain receptors that are sensitive to chemicals.

.....
..... [2]

www.chemactive.com

A student carried out an investigation to find out how sensitive the skin was on different parts of the body. The student placed two points of a compass gently on a person's skin and recorded whether they could feel two points or one point. This was repeated with the points of the compass being moved closer together until the person could only detect one point of the compass. The investigation was carried out on different parts of the body. The results are shown in the bar chart.



- (a) How far apart were the points of the compass when the subject could only detect one point
 - (i) on the palm of the hand?

..... [1]
 - (ii) on the foot?

..... [1]
- (b)(i) Which part of the body was most sensitive?

..... [1]
- (b)(ii) Which part of the body was least sensitive?

..... [1]
- (c) Which two parts of the body were equally sensitive?

..... [2]
- (d) Name one other stimulus to which the skin is sensitive.

..... [1]

Low Demand Questions

QUESTIONSHEET 3

- (a) Name the organs which produce each of the following hormones.
Choose from this list.

ovaries brain liver stomach pancreas testes kidney

- (i) testosterone.

..... [1]

- (ii) insulin.

..... [1]

- (iii) oestrogen.

..... [1]

- (b) How are hormones carried around the body?

..... [1]

- (c)(i) Which hormone is lacking in a person who suffers from diabetes?

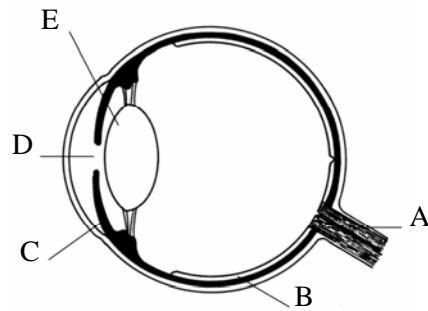
..... [1]

- (ii) How does the urine of a person suffering from diabetes differ from that of a healthy person?

..... [1]

www.chemactive.com

The diagram shows a section of the eye.



- (a) Name the parts of the eye labelled A, B, C, D and E.
Choose names from this list

A: [1]
 B: [1]
 C: [1]
 D: [1]
 E: [1]

suspensory ligament retina choroid lens pupil sclera optic nerve iris ciliary muscle

- (b) Which part of the eye:

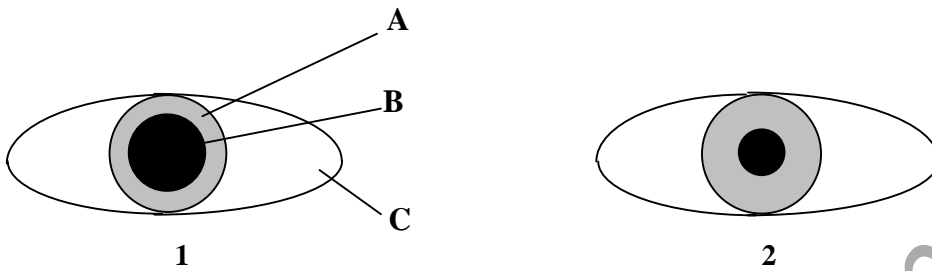
(i) contains cells sensitive to light?
 [1]

(ii) controls the amount of light entering the eye?
 [1]

(iii) connects the eye to the brain?
 [1]

(iv) holds the lens in position?
 [1]

The diagrams show the front of the eye.



(a) Name the parts labelled A, B and C.

A: [1]

B: [1]

C: [1]

(b) Which of the two diagrams shows the eye in poor light conditions?

..... [1]

(c) What causes the eye to change from the condition shown in diagram 2 to that shown in diagram 1?

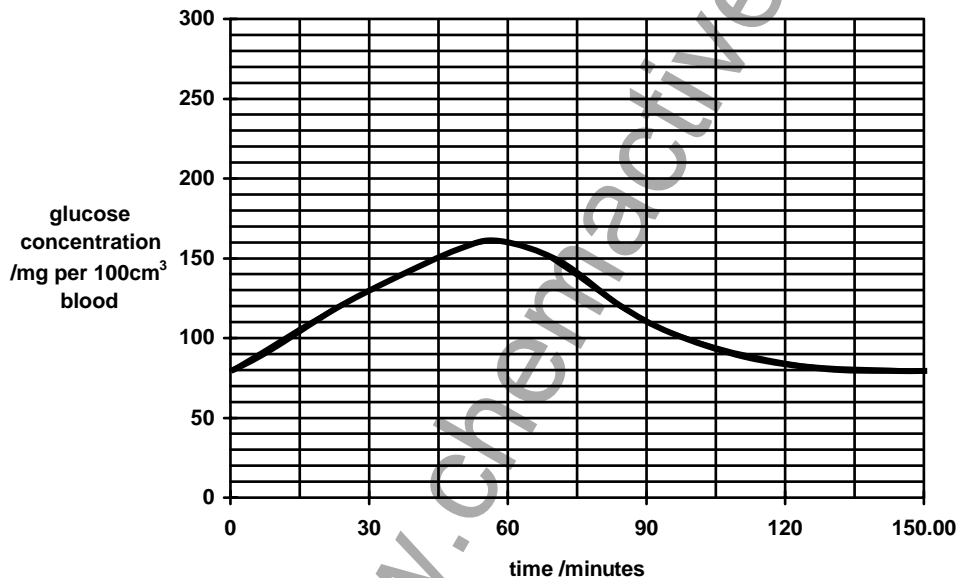
..... [1]

www.chemactive.com

The table shows the changes in the level of glucose in the blood of two people, A and B after drinking a solution of glucose in water.

| Time after drinking glucose /minutes | Blood glucose concentration /mg per 100 cm ³ blood | |
|--------------------------------------|---|----------|
| | Person A | Person B |
| 0 | 80 | 110 |
| 30 | 130 | 160 |
| 60 | 160 | 260 |
| 90 | 110 | 145 |
| 120 | 85 | 110 |
| 150 | 80 | 100 |

- (a) The figures for person A have been plotted on the graph. Plot the figures for person B. [3]



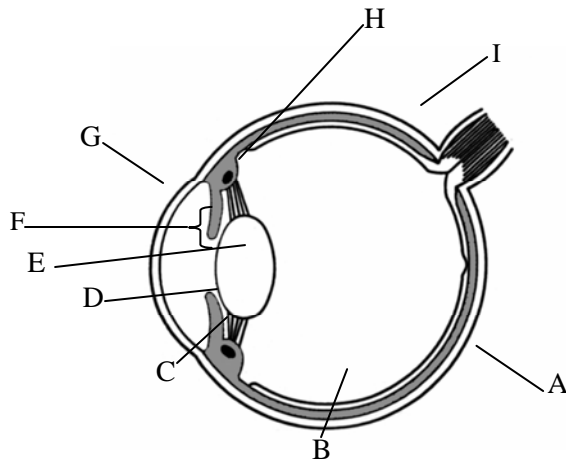
When the blood glucose level rises above 180 mg per 100cm³ of blood, glucose appears in the urine.

- (b)(i) Which of the two people has diabetes? [1]
- [1]

- (ii) Give a reason for your answer. [1]
- [1]

- (c) Explain why the urine of person B contained glucose. [1]
- [1]
- [1]

The diagram shows a section through the eye



Match one of the letters from the diagram with each of the functions given in the table.

[9]

| Function | Letter of part of eye |
|---|-----------------------|
| Carries nerve impulses from the eye to the brain. | |
| Controls the amount of light entering the eye. | |
| Alters its shape to focus on near or distant objects. | |
| Forms a transparent layer at the front of the eye. | |
| Holds the lens in position. | |
| Contains muscles which contract to focus on near objects. | |
| Forms a tough, outer layer to the eye. | |
| Contains light-sensitive cells. | |
| Becomes narrower in bright light. | |

Medium Demand Questions

QUESTIONSHEET 8

(a) Name the response which would be produced by each of the following stimuli.

(i) Dust in the eye.

..... [1]

(ii) Dust in the throat.

..... [1]

(iii) Bright light being shone in the eye.

..... [1]

(iv) Food in the mouth.

..... [1]

(b) What name is given to these types of responses?

..... [1]

(c) If plants are illuminated from one side they show a response to this stimulus.

(i) Which part of the plant shows the response?

..... [1]

(ii) What is the response made by this part of the plant?

..... [1]

(d) How do plant roots respond to

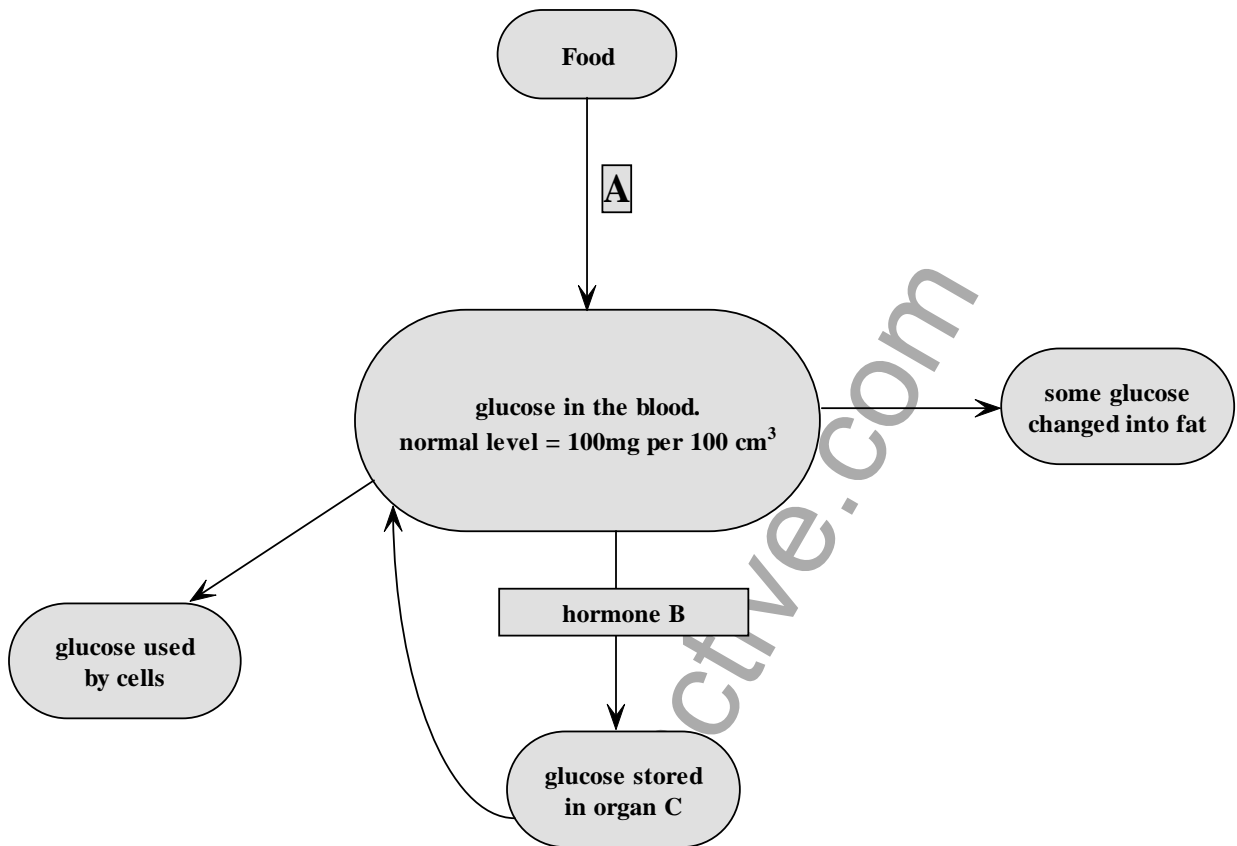
(i) water?

..... [1]

(ii) gravity?

..... [1]

The diagram shows some of the processes which affect the levels of glucose in the body.



- (a) What process is represented by the arrow labelled A?
 [1]
- (b) In which process do cells use glucose?
 [1]
- (c)(i) Name hormone B.
 [1]
- (ii) Where is hormone B produced?
 [1]
- (iii) In what circumstances is hormone B produced?
 [1]
- (d) Name organ C.
 [1]

GCSE BIOLOGY NERVOUS & HORMONAL CO-ORDINATION

Medium Demand Questions

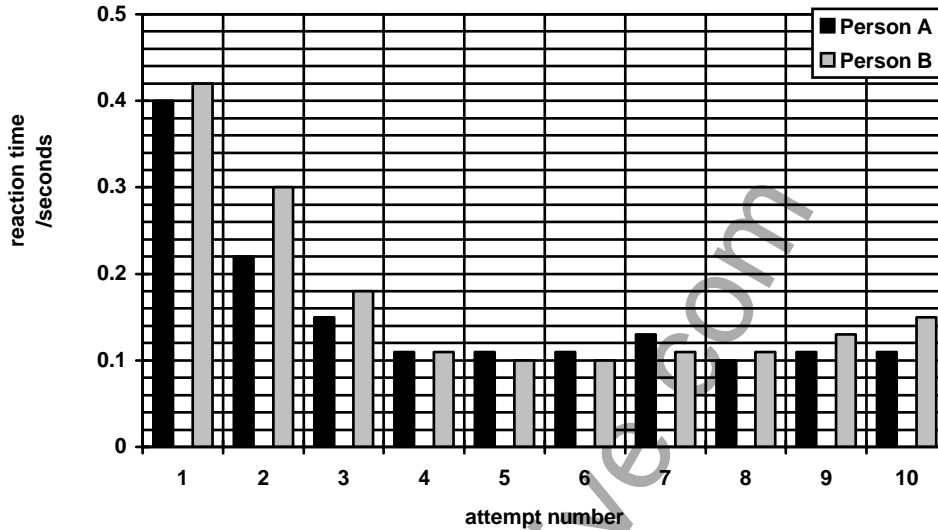
QUESTIONSHEET 10

Some of the following statements are true and some are false.
Tick (✓) the box if the statement is true.

1. Reflex actions are controlled by the brain.
2. The lens focuses light onto the retina.
3. Diabetes is caused by lack of the hormone adrenaline.
4. Hormones are carried in the blood.
5. Receptor cells in the ear help us to maintain balance.
6. Hormonal responses are faster than nervous responses.
7. The release of an egg from a woman's ovaries is controlled by hormones.
8. Light enters the eye through the cornea.
9. Insulin is produced by the ovaries.
10. A symptom of diabetes is the presence of protein in the urine.

TOTAL / 5

A student carried out an experiment to measure the reaction time of two people. Each person had to press a buzzer when a light flashed on. The time taken for each person to react was recorded and plotted on the chart. The test was carried out 10 times.



(a)(i) What was the slowest reaction time?

..... [1]

(ii) What was the fastest reaction time?

..... [1]

(b) Describe how the reaction time of person B changed over the 10 attempts.

..... [3]

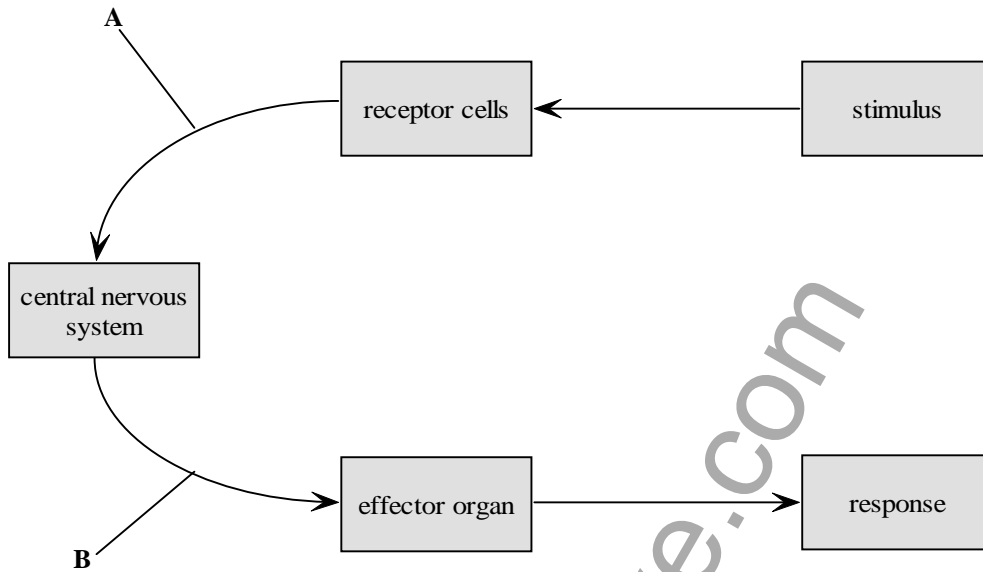
(c) What was the stimulus in this experiment?

..... [1]

(d) How would the persons' reaction time have differed if they had been given a drink of alcohol before the experiment?

..... [1]

The diagram shows the main stages in a reflex action.



(a) The stimulus in this reflex action was a hot plate touching the hand.

(i) Where are the receptor cells located?

..... [1]

(ii) Name the type of nerve cell labelled A.

..... [1]

(iii) Name the type of nerve cell labelled B.

..... [1]

(iv) There is a third nerve cell between nerve cells A and B.
Where is this nerve cell located?

..... [1]

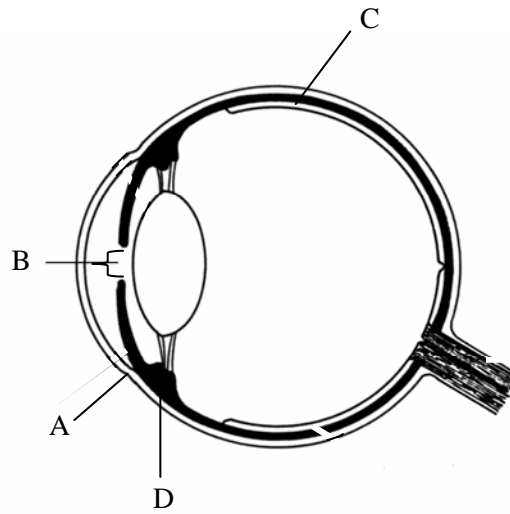
(v) What would be the response to the hand touching a hot plate?

..... [1]

(vi) How is this response brought about?

..... [1]

The diagram shows a section of the eye.



(a) Name the parts labelled A, B, C and D.

- A: [1]
- B: [1]
- C: [1]
- D: [1]

www.chemactive.com

GCSE BIOLOGY NERVOUS & HORMONAL CO-ORDINATION

High Demand Questions

QUESTIONSHEET 14

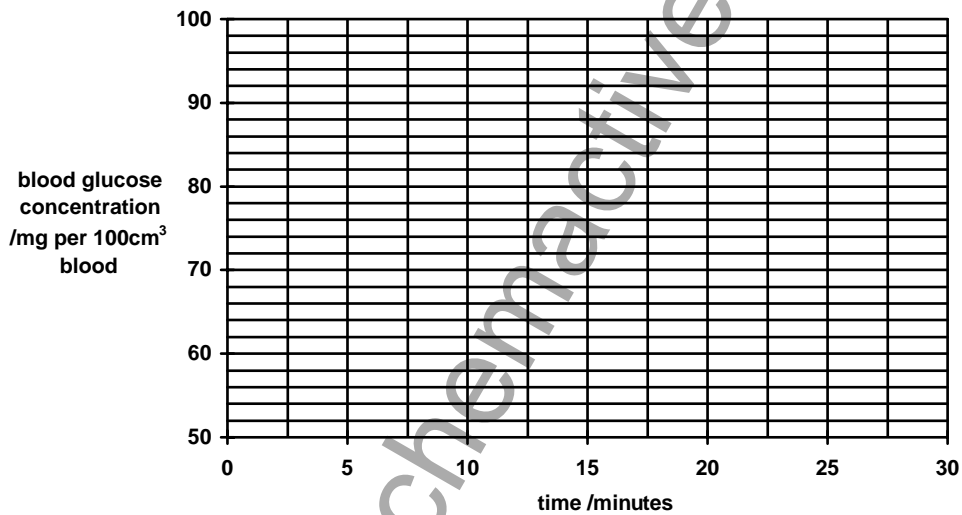
The table shows the level of glucose in the blood before, during and after a 10 minute period of vigorous exercise.

The exercise started at 10 minutes.

| Time /minutes | Blood glucose concentration /mg per 100 cm³ blood |
|----------------------|---|
| 0 | 94 |
| 5 | 94 |
| 10 | 94 |
| 15 | 62 |
| 20 | 85 |
| 25 | 90 |
| 30 | 94 |

(a) Plot a line graph of these figures.

[3]



(b) What is the normal level of blood glucose for this person?

..... [1]

(c) Explain why the blood glucose level fell during the period of exercise.

.....
 [2]

(d) What caused the rise in the blood glucose level between 15 and 20 minutes?

.....

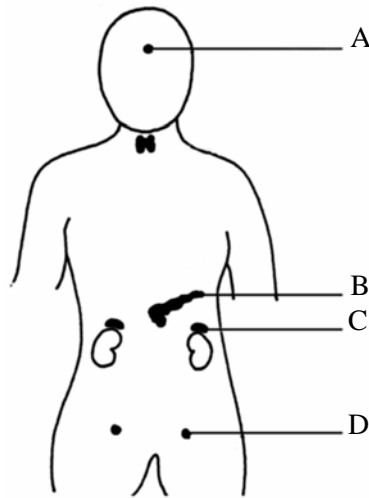
 [3]

GCSE BIOLOGY NERVOUS & HORMONAL CO-ORDINATION

High Demand Questions

QUESTIONSHEET 15

The diagram shows the position in the body of some of the endocrine glands.



(a) Complete the following table.

| Gland | Name of gland | Hormone produced |
|-------|---------------|------------------|
| A | Pituitary | FSH |
| B | | |
| C | | Adrenalin |
| D | Ovaries | |

[4]

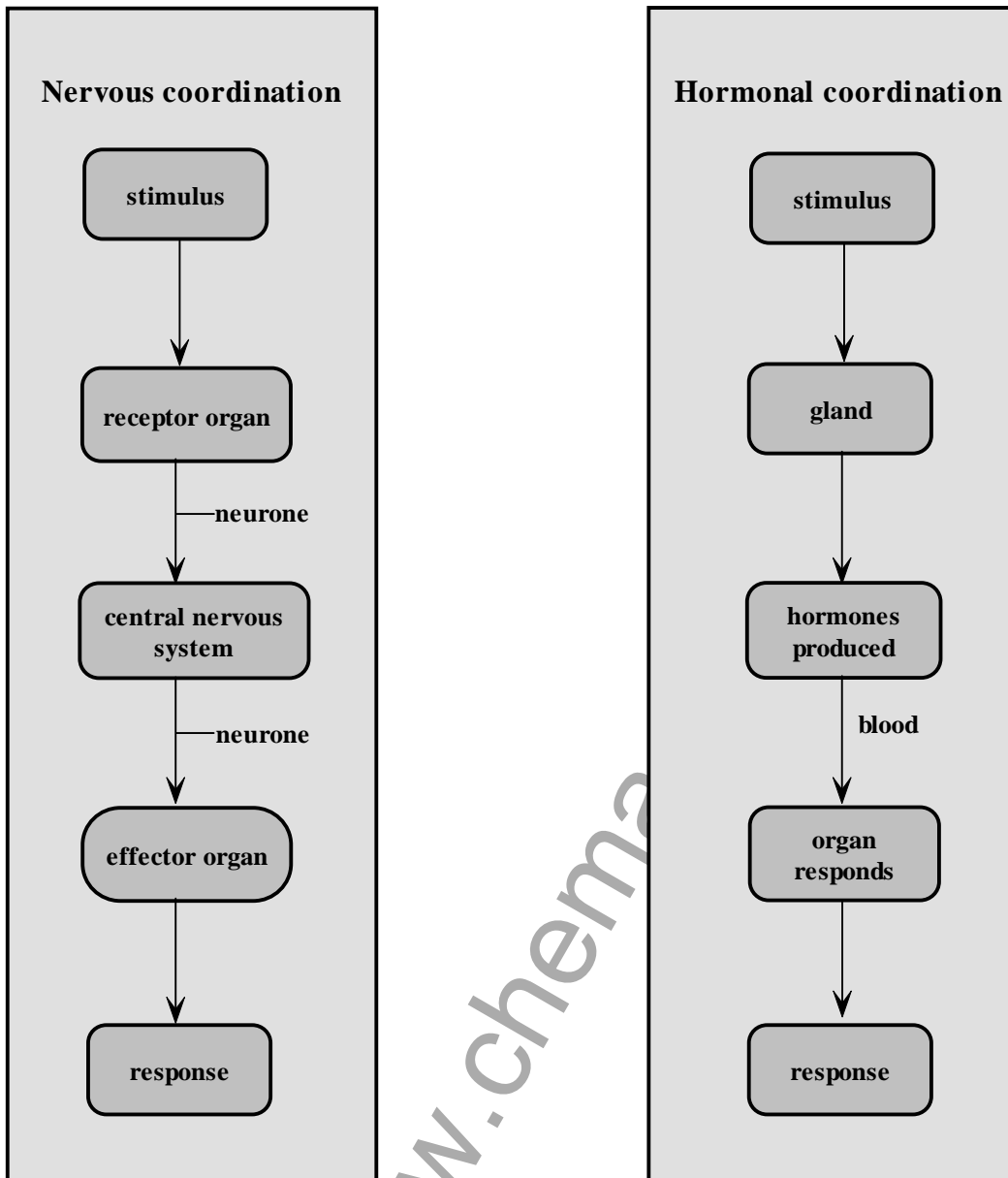
(b) State three effects of adrenalin on the body.

.....

.....

..... [3]

The diagram shows an outline of nervous and hormonal co-ordination.



(a) Give three ways in which the two methods of co-ordination are similar.

.....

.....

..... [3]

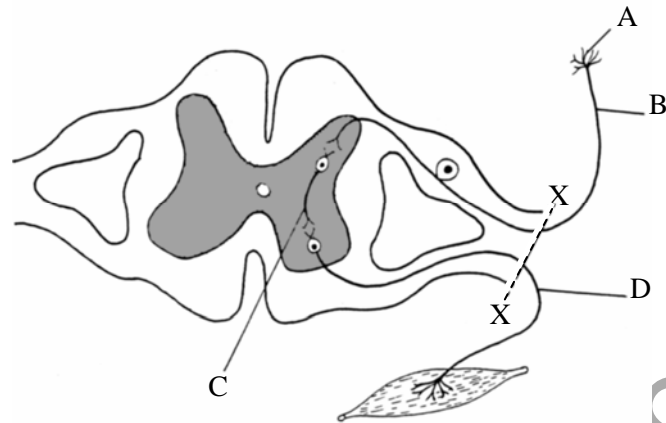
(b) Give three ways in which the two methods of co-ordination are different.

.....

.....

..... [3]

The diagram shows the pathway of a reflex arc.



(a) Name the parts labelled A, B, C and D.

- A: [1]
- B: [1]
- C: [1]
- D: [1]

(b) Draw arrows on the diagram to show the direction of a nerve impulse in the parts labelled B and D. [2]

(c) What is the name of the gap between the parts labelled B and C? [1]

..... [1]

(d) How does the nerve impulse pass across this gap? [1]

..... [1]

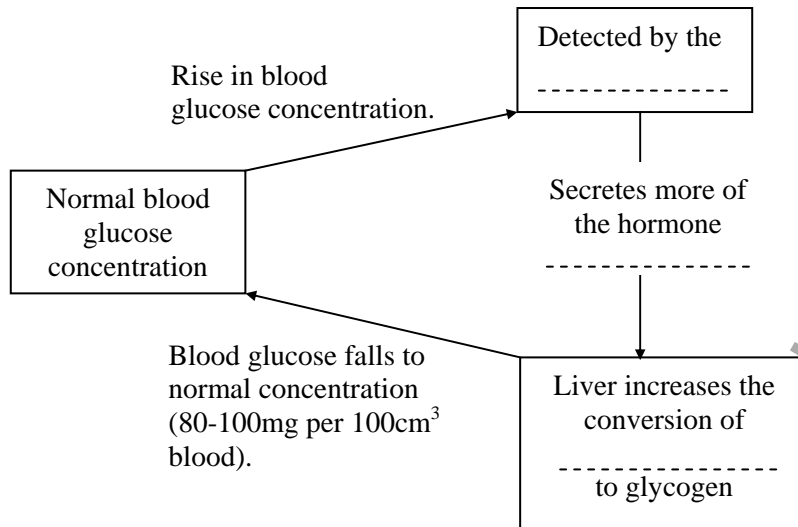
(e)(i) If the nerve to the arm were cut along the line marked X- - - X, how would this affect the person's movement? [1]

..... [1]

(ii) Give a reason for your answer. [1]

..... [1]

The diagram shows some of the events in the regulation of blood glucose.



(a)(i) Complete the diagram of the regulation of blood sugar by writing in the spaces. [3]

(ii) What is the normal concentration of glucose in the blood?

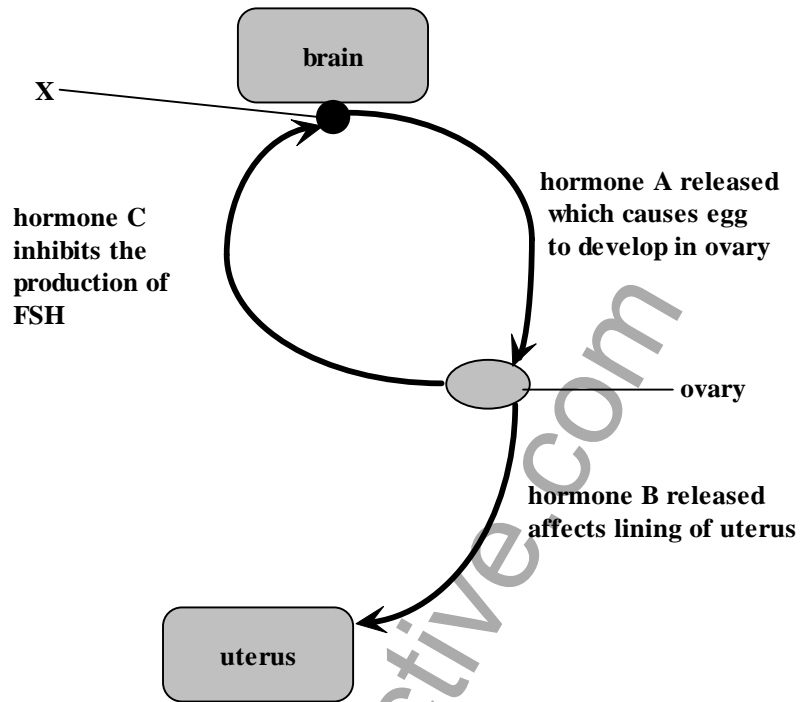
..... [2]

(b) Suggest **two** circumstances when the concentration of glucose in the blood might rise.

.....
 [2]

www.chemactive.com

The diagram shows some of the hormones concerned with the female reproductive system.



- (a) Name the structure labelled X.
 [1]
- (b) Name hormone A.
 [1]
- (c)(i) Name hormone B.
 [1]
- (ii) How does hormone B affect the uterus lining?

 [2]
- (d) Name hormone C.
 [1]
- (e) Some types of infertility in women can be treated by taking the drug clomiphene which acts by inhibiting the production of oestrogen. Explain how this increases the chances of a woman becoming pregnant.

 [2]
- TOTAL / 8

GCSE BIOLOGY NERVOUS & HORMONAL CO-ORDINATION

High Demand Questions

QUESTIONSHEET 20

(a) The level of water in the blood is controlled by a negative feedback system.

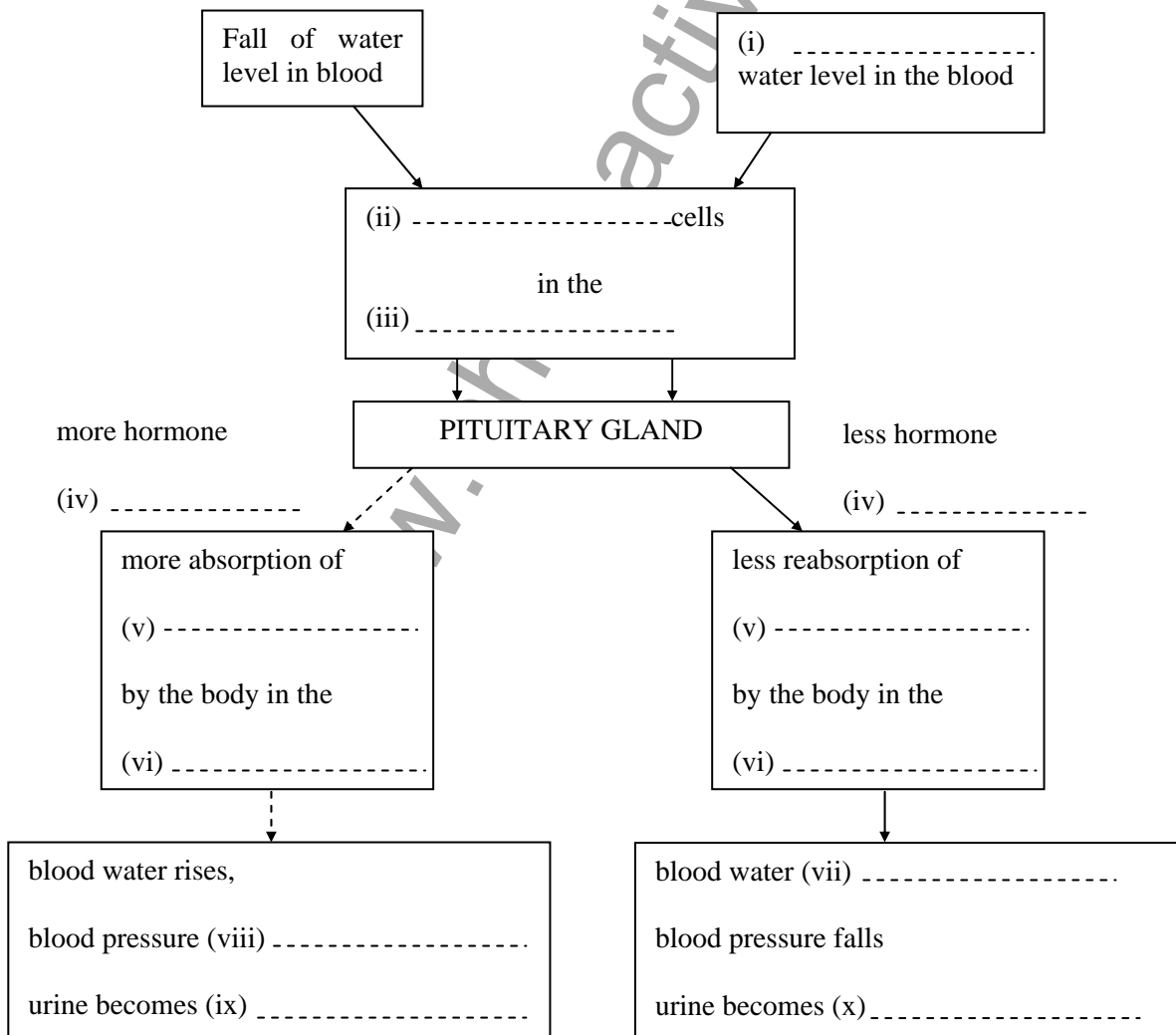
What is meant by feedback?

.....
 [1]

(b) The passage describes the control of blood water level.

In the hypothalamus of the brain special cells, called osmoreceptors, respond to changes in the blood. When the blood pressure is low the hypothalamus responds by causing the pituitary gland to secrete a hormone which causes the body to reabsorb more water. When blood pressure is too high the hypothalamus responds by causing the pituitary gland to secrete less of the hormone so the body reabsorbs less water

Use the information in the passage and your own knowledge to complete the flow diagram of the control of blood water. [10]



High Demand Questions

QUESTIONSHEET 21

(a) Give a function of each of the following,

(i) lens.

..... [1]

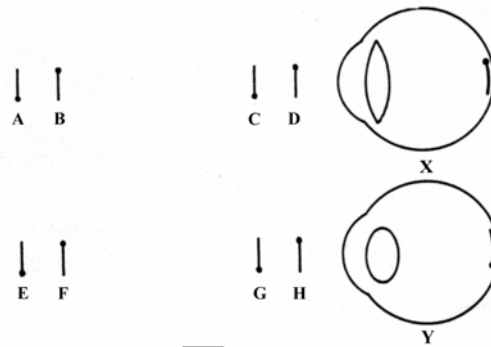
(ii) optic nerve.

..... [1]

(iii) iris.

..... [1]

(b) The diagram shows two eyes focused on objects at different distances from the eye.



(i) State which object eye X is focused on.

..... [1]

(ii) State which object eye Y is focused on.

..... [1]