

GCSE

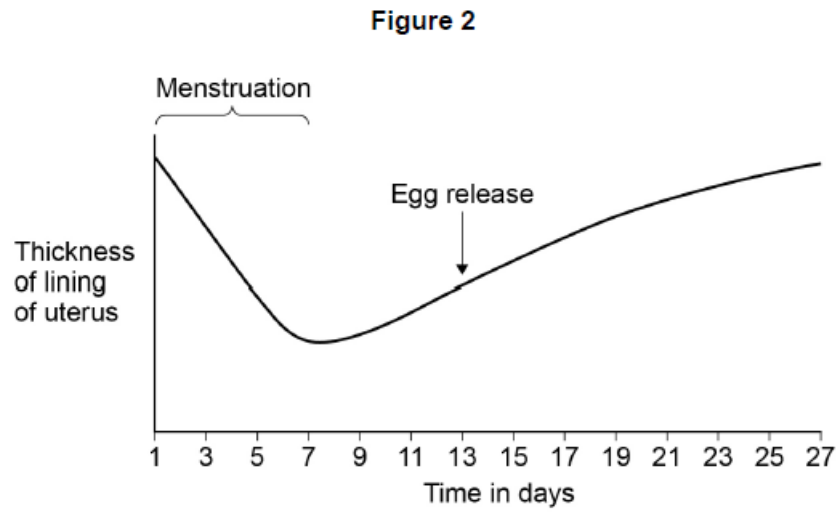
BIOLOGY

Biology Test 3: Homeostasis and response (Foundation)

Total number of marks: 33

0 2

Figure 2 shows some changes that occur during the menstrual cycle.



0 2 . 1

Figure 2 shows that the lining of the uterus thickens between days 7 and 27.

What is the purpose of thickening the lining of the uterus?

[1 mark]

Tick **one** box.

To allow implantation of the embryo

To break down waste

To prevent sperm reaching the egg

0 2 . 2

Which hormone causes thickening of the lining of the uterus?

[1 mark]

Tick **one** box.

Auxin

Oestrogen

Testosterone

0 2 . 3 On which day is fertilisation most likely to occur?

Use information from **Figure 2**.

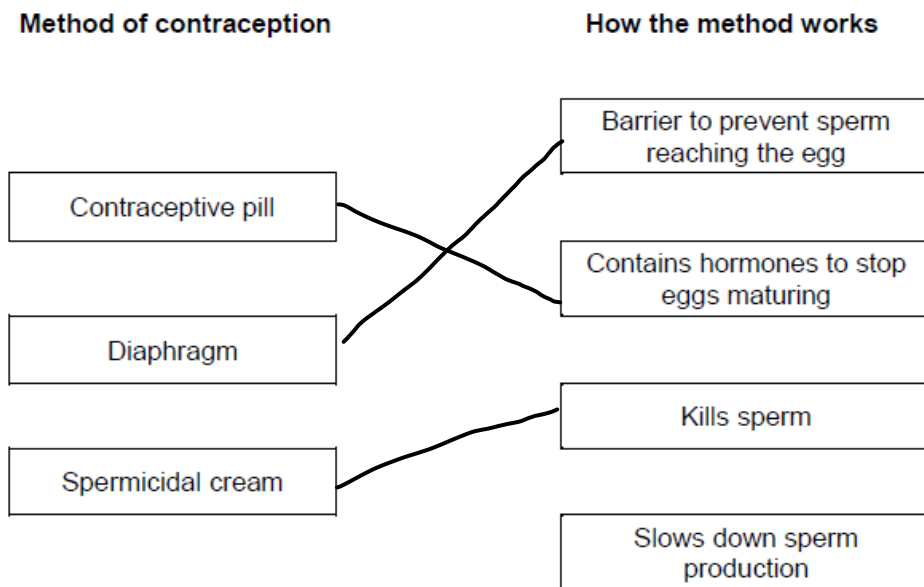
[1 mark]

day 22

Contraception can be used to lower the chance of pregnancy.

0 2 . 4 Draw **one** line from each method of contraception to how the method works.

[3 marks]



0 2 . 5 Table 2 gives information about some different methods of contraception.

Table 2

Method	Number of pregnancies per 100 women in one year	Possible Side effects
Diaphragm and spermicidal cream	8	Usually none, but can cause bladder infection in some women
Condom	2	None
Contraceptive pill	1	Mood swings, headaches, high blood pressure, blood clots, breast cancer

A man and a woman decide to use the condom as their method of contraception.

Suggest **three** reasons for this decision.

Use information from **Table 2** and your own knowledge.

[3 marks]

1 no side effects

2 easy and quick to use

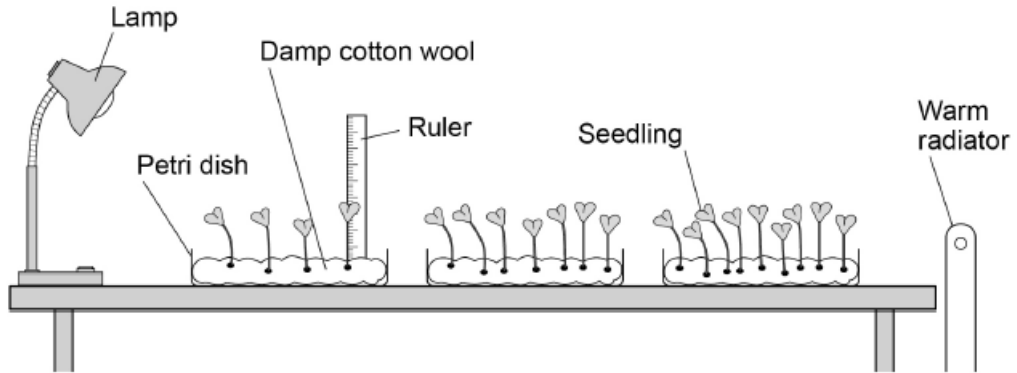
3 low number of pregnancies per 100 women in a year shows that it is effective

0 2

A student investigated the effect of light intensity on the growth of seedlings.

Figure 2 shows the equipment.

Figure 2



0 2 . 1

Which **two** improvements should the student make to the investigation?

[2 marks]

Tick (✓) **two** boxes.

Give more water to the seedlings nearest the lamp

Leave some of the seedlings for a few more days

Open a window to let more air in

Put all the dishes the same distance from the radiator

Use equal numbers of seedlings in each dish

0 2 . 2

What is the dependent variable in the investigation?

[1 mark]

Tick (✓) **one** box.

The height of the seedlings

The mass of cotton wool

The temperature of the room

Figure 3 shows a seedling growing towards a lamp.

Figure 3



0 2 . 4 What happened to the growth of the seedling on side P compared with the growth on side Q?

[1 mark]

Tick (✓) **one** box.

Side P has grown less than side Q

Side P has grown more than side Q

Side P has grown the same as side Q

0 2 . 5 Plant responses are called tropisms.

Which tropism causes the seedling to grow towards light?

[1 mark]

Tick (✓) **one** box.

Geotropism

Gravitropism

Phototropism

0 2 . 6 Which hormone causes the seedling to grow towards the light?

[1 mark]

Tick (✓) **one** box.

Auxin

Insulin

Testosterone

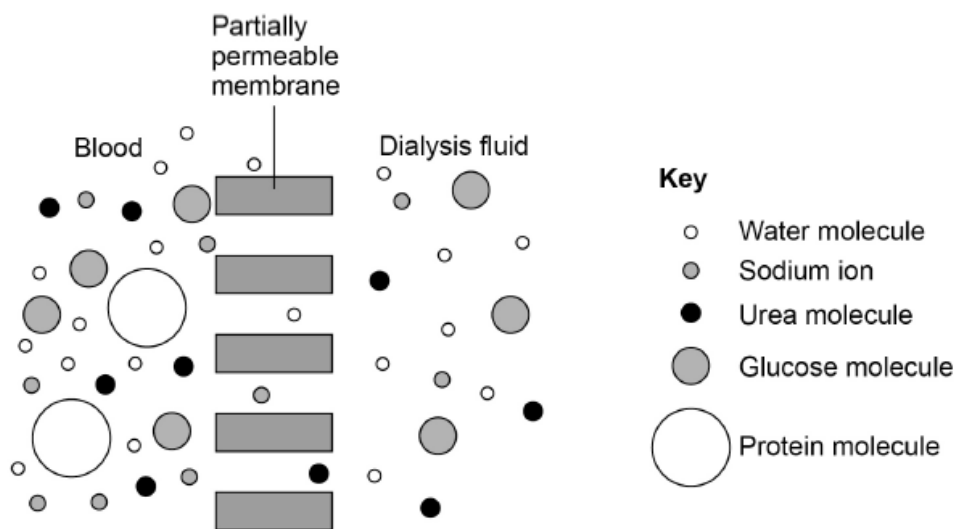
Some people have kidney disease.

Kidney disease may be treated by dialysis or by having a kidney transplant operation.

- During dialysis, a person is connected to a machine that filters the blood.
- Each dialysis session lasts about 6 hours.
- The person has several dialysis sessions each week.

Figure 12 shows how dialysis works.

Figure 12



0 6 . 5 How does urea move out of the blood during dialysis?

[1 mark]

Tick (✓) **one** box.

Diffusion

Digestion

Osmosis

Respiration

0 6 . 6 Which substance in **Figure 12** does **not** pass from the blood into the dialysis fluid?

Give the reason for your answer.

[2 marks]

Substance protein molecules

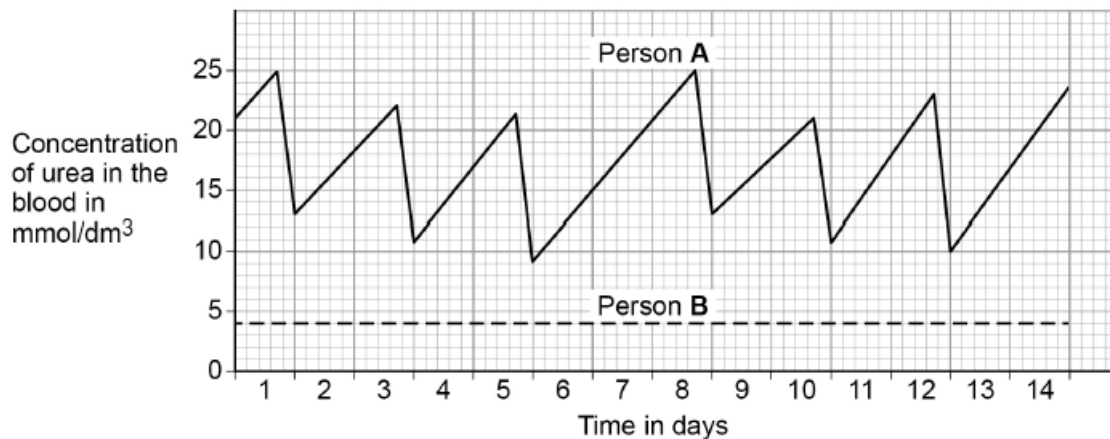
Reason they are too big to pass through the partially permeable membrane

Two people have kidney disease.

- Person **A** is treated by dialysis.
- Person **B** has had a kidney transplant.

Figure 13 shows changes in the urea concentration in the blood of each person over 2 weeks.

Figure 13



0 6 . 7 How many dialysis sessions did person **A** have **each week**?

[1 mark]

3

0 6 . 8 What happens to the concentration of urea in the blood between dialysis sessions?

[1 mark]

increases

06.9

Give **two** reasons why a kidney transplant is a better method for treating kidney disease than dialysis.

[2 marks]

1 cheaper overall

2 patient can have a normal life after transplant

0 9

Many human actions are reflexes.

0 9

. 1

Which **two** of the following are examples of reflex actions?

[2 marks]

Tick **two** boxes.

Jumping in the air to catch a ball

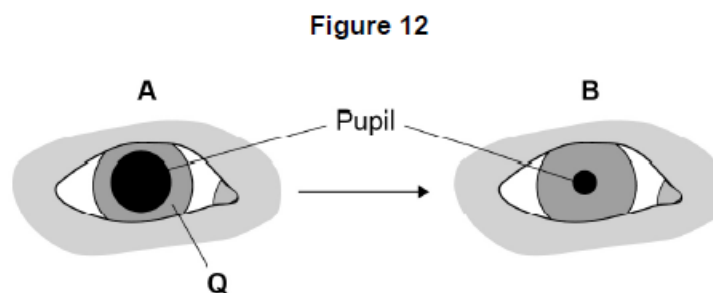
Raising a hand to protect the eyes in bright light

Releasing saliva when food enters the mouth

Running away from danger

Withdrawing the hand from a sharp object

Figure 12 shows how the size of the pupil of the human eye can change by reflex action.



0 9

. 2

Name **one** stimulus that would cause the pupil to change in size from **A** to **B**, as shown in **Figure 12**.

[1 mark]

light

0 9

. 3

Structure **Q** causes the change in size of the pupil.Name structure **Q**.

[1 mark]

iris

0 9

. 4

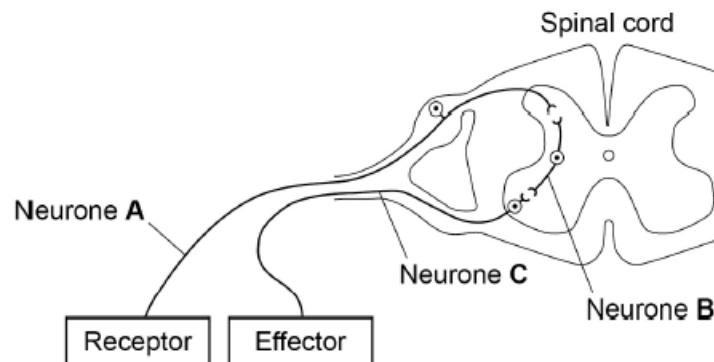
Describe how structure **Q** causes the change in the size of the pupil from **A** to **B**.

[1 mark]

The circular muscles contract and radial muscles relax.

0 9 . 5 Figure 13 shows some structures involved in the coordination of a reflex action.

Figure 13



Describe how the structures shown in Figure 13 help to coordinate a reflex action.

[6 marks]

The receptor detects a stimulus and the sensory neuron sends electrical impulses to the relay neuron. Relay neurons are found in the spinal cord and connect sensory and motor neurons. The motor neuron then sends electrical impulses to the effector, which produces a response. When 2 neurons meet, the electrical impulse is converted chemical messengers to be transmitted across the synapse. The electrical impulse triggers neurotransmitter release from the axon terminal. The neurotransmitters diffuse across the synapse and bind to specific receptors on the post-synaptic membrane, and stimulate an electrical impulse in the second neuron.