# FOUNDATION BIOLOGY

# LONG ANSWER QUESTION PRACTICE

# How to use this booklet

A selection of longer written questions have been selected from past GCSE papers for you to practice answering.

You should revise the content first to ensure you have a good knowledge and then have a go at answering the questions.

A model full mark answer has been provided at the end of the booklet for every question so you can compare you answer to see if there are any other details you could have included.

There are two levels of questions, the easier questions would be found at the beginning of the foundation paper. The harder questions would be found at the end.

Contents

# Cell Biology

## Easier questions

1) An infected rose bush:

- has yellow leaves
- is not growing

Explain why the rose bush is **not** growing. (4)

2) Describe **two** ways the root shown to the right is adapted to absorb water efficiently. (2)

3) Osmosis is the movement of water through partially permeable cell membranes.

A group of students investigated the effect of temperature on the rate of osmosis in potato cells. The students used five potato chips all cut to the same size.

**Figure 1** shows one chip.

**Figure 1**

This is the method used.

1. Half fill a boiling tube with distilled water.
2. Heat the water to 25 °C
3. Place one potato chip in the boiling tube.
4. Keep the boiling tube and potato chip at 25 °C for 30 minutes.
5. Repeat steps 1−4 at four other temperatures.

All of the potato chips gained water by osmosis.

Explain how the students would find out the rate of water uptake by osmosis in each potato chip.

4) As the speed of an athlete increases the heart rate of the athlete increases.

As the speed increases from 3.0 m/s to 3.4 m/s lactic acid concentration in the blood decreases.

Explain how an increase in heart rate could cause the decrease in lactic acid concentration.

Use words from the box below in your answer. (3)

| blood flow | muscle | oxygen | respiration |
|---|---|---|---|

## Harder questions

5) Some sugar molecules are absorbed from the small intestine into the blood by active transport.

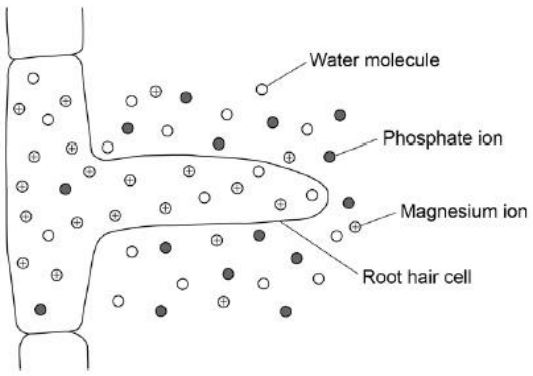
Explain why the rate of absorption of these sugar molecules can depend on the concentration of oxygen in the cells lining the small intestine. (3)

6) The diagram below shows two model cells.


Describe how the surface area to volume ratio changes as the length of the side of the model cell increases. You should include calculations in your answer. (3)

7) Using the answer from question 5 to help you. Explain why a bacterium can rely on diffusion for gas exchange, but animals need a transport system. (3)

8) Particles can move into and out of cells by different processes.
**Figure 2** shows different particles inside and outside a root hair cell.




Explain the processes by which the different particles would enter the root hair cell. (6)

# Organisation

## Easier questions

1) Coronary heart disease (CHD) develops when layers of fatty material build up in the coronary artery.

   One treatment for CHD is to insert a stent into the coronary artery.

**Figure 2**

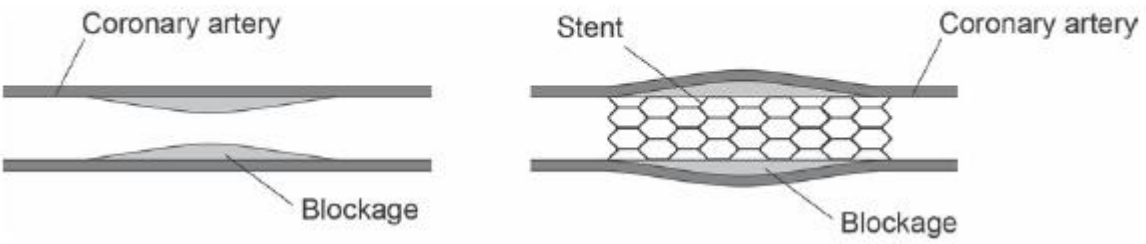


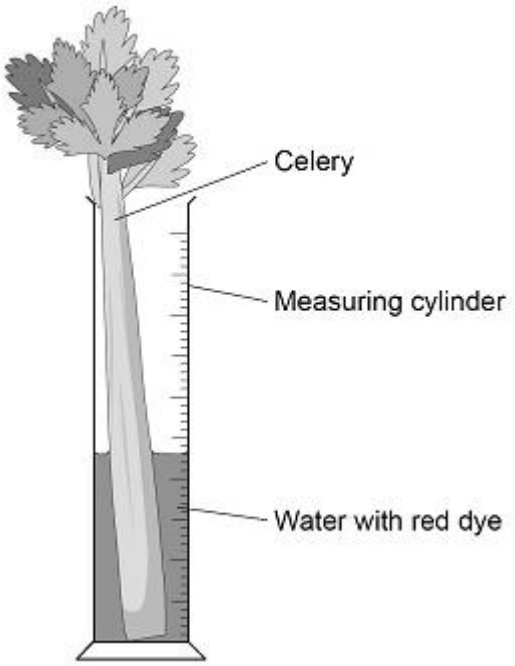

**Figure 2** shows a stent in a coronary artery.

Explain why the stent helps to prevent a heart attack. (4)

2) A teacher used celery in an experiment to show water uptake in plants.

   **Figure 2** shows the apparatus used.

**Figure 2**




The celery was left in the water with red dye for three hours.

After three hours the leaves of the celery were dark red.

Explain how the leaves became dark red.

3) Four foods were tested for starch, sugar and protein.

The table shows the results.

| Food | Test for starch: colour after iodine test | Test for sugar: colour after Benedict's test | Test for protein: colour after Biuret test |
|---|---|---|---|
| A | Blue-Black | Brick red | Blue |
| B | Orange | Blue | Lilac |
| C | Blue-Black | Yellow | Blue |
| D | Orange | Orange | Lilac |

Give **three** conclusions about food **D**. (3)

## Harder questions

4) What is meant by the *transpiration stream*? (3)

5) Compare the structure of an artery with the structure of a vein. (3)

6) Describe the route taken by oxygenated blood from the lungs to the body cells. (4)

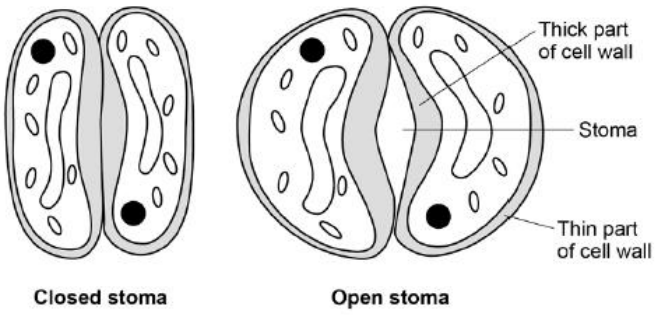
7) Enzymes speed up chemical reactions. Explain how amylase breaks down starch. (3)

8) Describe the route taken by oxygenated blood from the lungs to the body cells. (4)

9) Look at the diagram below.

When light intensity is high potassium ions are moved into the guard cells.

Describe how the movement of potassium ions into the guard cells causes the stoma to open. (4)



# Infection & response

## Easier questions

1) Scientists are developing a vaccine against malaria.

   Suggest how a vaccine against malaria could reduce the spread of the disease. (2)

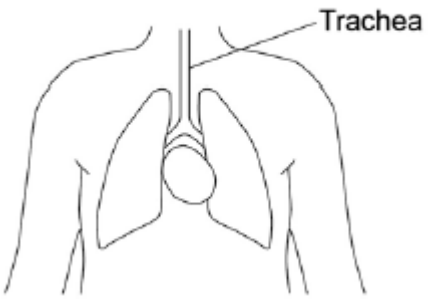
2) Describe the ways in which the human body defends itself against the tuberculosis bacterium. (4)

3) Some parts of the human body have adaptations to reduce the entry of live pathogens.

   Look at **Figure 1**.

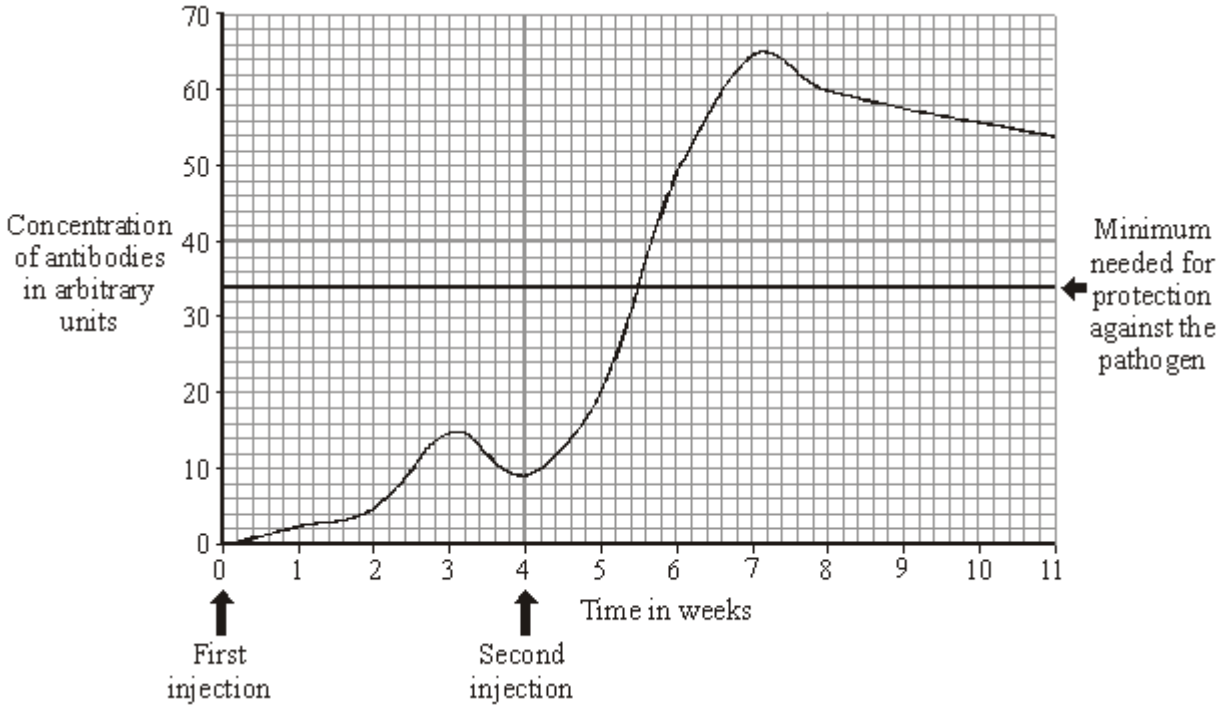
   Explain how the trachea is adapted to reduce the entry of live pathogens. (4)

**Figure 1**




4) Vaccination protects us from pathogens.

   The graph shows the concentration of antibodies in the blood of a person after two injections of vaccine given four weeks apart.

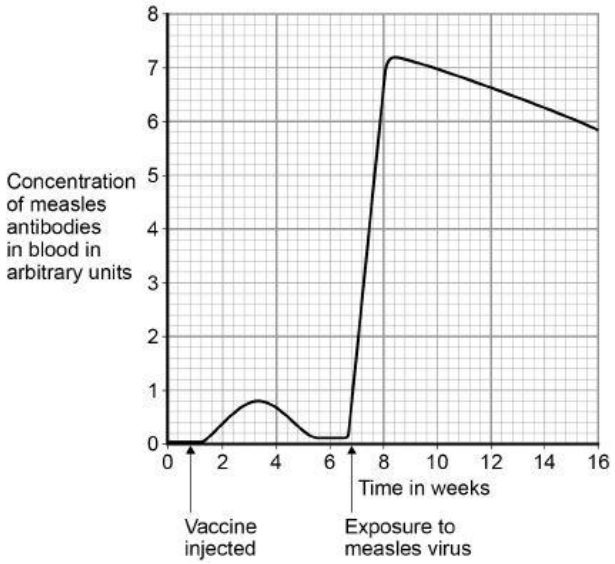



   Describe what happened to the concentration of antibodies in the blood from week 0 to week 7. (3)

## Harder questions

5) The graph below shows the concentration of measles antibodies in the blood of a boy.

Explain the differences between antibody production after the vaccine injection and after exposure to the measles virus.
You should include data from the graph. (6)




6) Antibiotic-resistant strains of bacteria are causing problems in most hospitals. Explain, as fully as you can, why there has been a large increase in the number of antibiotic-resistant strains of bacteria. (4)

7) Explain why drugs must be trialled before the drugs can be used on patients. (3)

8) Pathogenic bacteria and viruses may make us feel ill if they enter our bodies. Why do bacteria and viruses make us feel ill? (2)

# Bioenergetics

## Easier questions

1) Exercise can improve health.

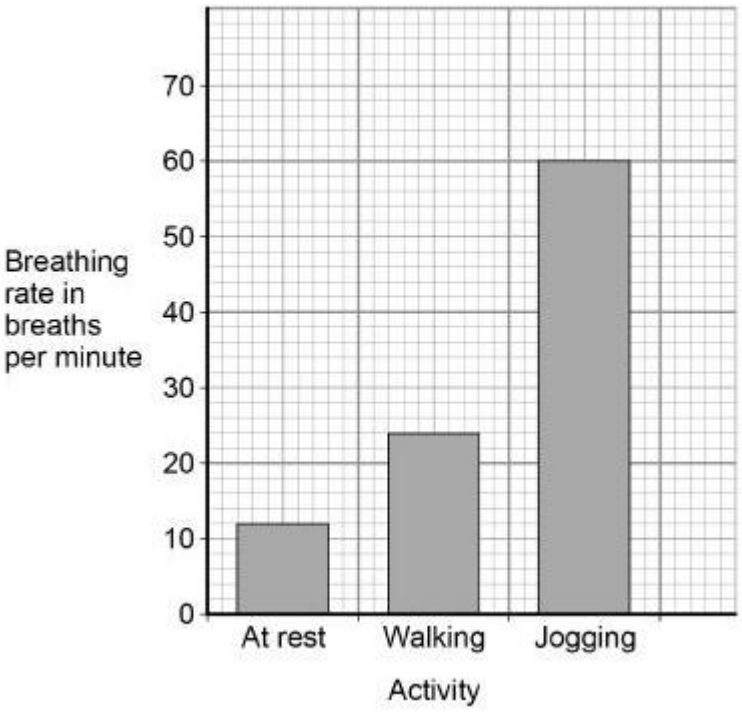
A student measured her breathing rate at rest, when walking and when jogging.

**Figure 1** shows her results.

Compare the breathing rates when doing the **three** different activities.

Use values from **Figure 1** in your answer. (3)

**Figure 1**




2) During exercise the heart rate increases.

There are other changes in the body during exercise.

Explain why these changes occur. (4)

3) Give **three** ways in which plants use the glucose made in photosynthesis. (3)

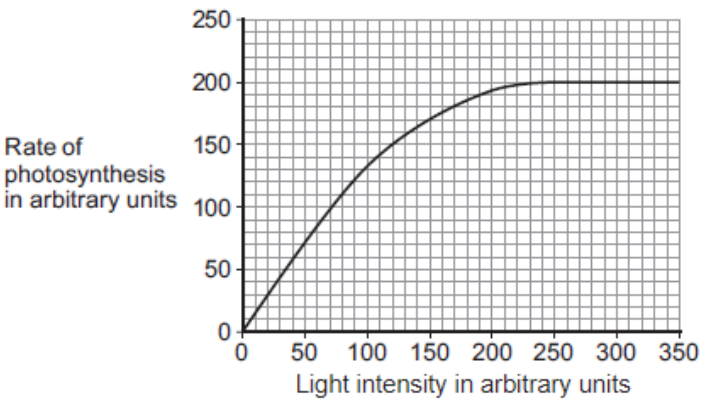
4) Scientists investigated the effect of light intensity on the rate of photosynthesis.

**Figure 3** shows the scientists' results.

Describe the effect of increasing light intensity on the rate of photosynthesis.

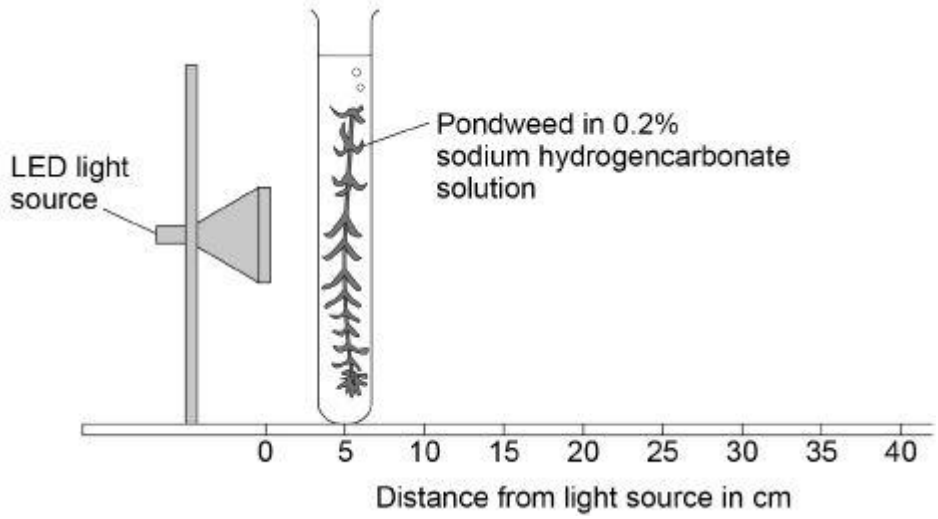
You should include numbers from **Figure 3** in your description. (3)

**Figure 3**



# Harder questions

5) A student investigated the effect of light intensity on the rate of photosynthesis. The diagram below shows the apparatus used.




The LED light source does **not** get hot. Explain why it is important that the pondweed remains at a constant temperature. (2)

6) Muscle cells and plant cells can respire anaerobically. Compare the processes of anaerobic respiration in muscle and plant cells. (4)

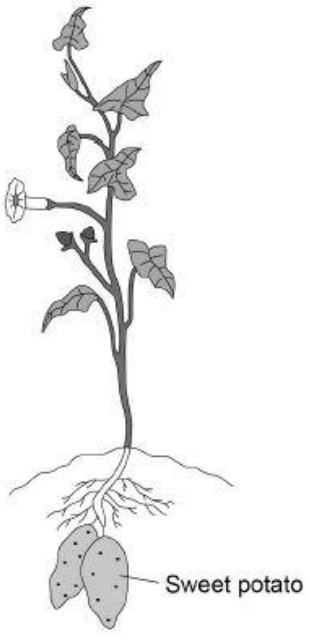
7) Plants need nitrate ions in order to make proteins. A plant is growing in soil flooded with water. Explain why the plant cannot absorb enough nitrate ions. (5)

8) The diagram to the right shows a sweet potato plant.

The sweet potatoes grow underground and can be cooked and eaten.

The sweet potatoes found underground contain starch.

Explain how starch in the sweet potato is produced from carbon dioxide in the air. (6)



# Homeostasis & response

## Easier questions

1) The table shows some information about three methods of contraception.

| Method | Effectiveness | Other information |
|---|---|---|
| Combined pill | 99.5% | • Must be taken every day<br>• Free from your GP or sexual health clinic<br>• May cause headaches |
| Male condom | 98.0% | • May split or leak<br>• Only used when you have sexual intercourse<br>• Inexpensive in supermarkets or free from a sexual health clinic |
| Sterilisation | 100.0% | • Needs an operation in hospital<br>• Usually cannot be reversed |

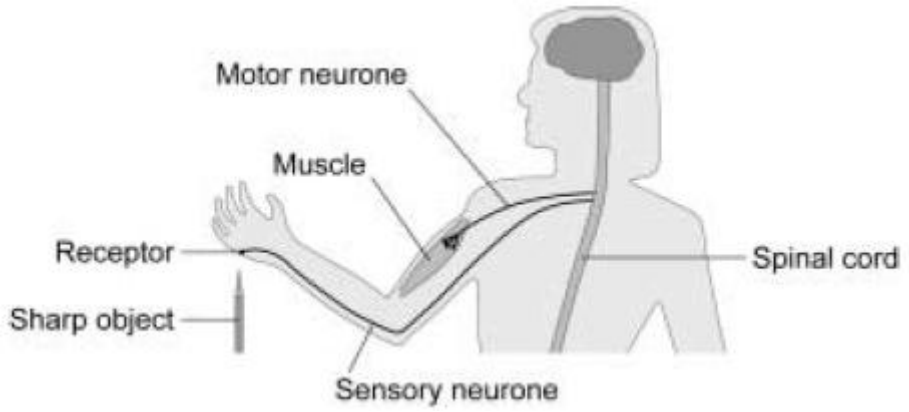
A man and a woman plan to start a family in 5 years' time.

Compare the risks and benefits for this couple of the three methods of contraception. (4)

2) A student accidentally touches a sharp object.

Her hand is immediately pulled away from the object.

The diagram shows the structures involved in this response.




Describe how the structures labelled on the diagram are involved in this reflex action. (4)

3) The concentration of glucose in the blood is controlled by homeostasis.

A person with type-1 diabetes must inject themselves with insulin. Afterwards the blood glucose concentration decreases.

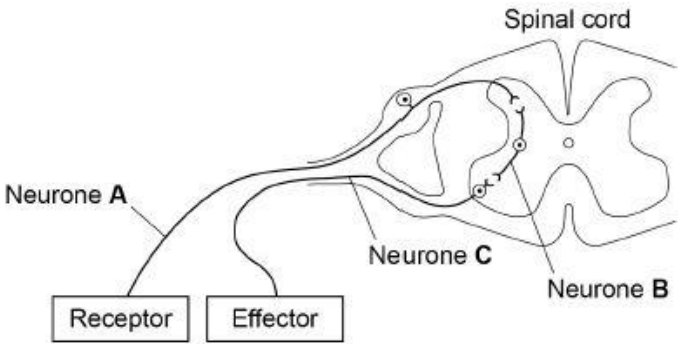
Explain the decrease in blood glucose concentration after the hormone was injected.

Use all the words in the box in your explanation.

| blood | cells | glucose | glycogen |
|---|---|---|---|

## Harder questions

4) The figure below shows some structures involved in the coordination of a reflex action.

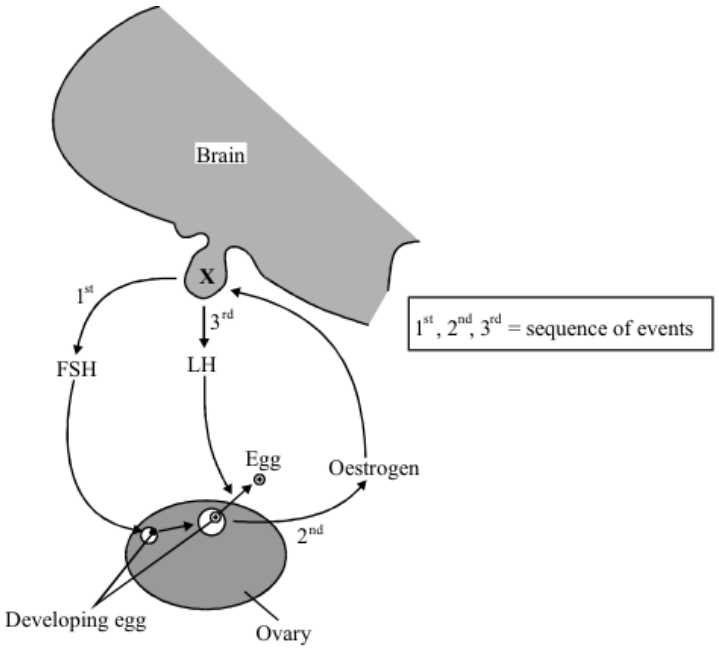



Describe how the structures shown in **Figure 2** help to coordinate a reflex action. (6)

5) Many functions of the human body are controlled by chemicals called hormones. What is a hormone? (3)

6) The diagram shows how three hormones, FSH, LH and oestrogen, work together in a woman's body.

Use information from the diagram and your own knowledge to name the part labelled X and explain why some oral contraceptive pills contain oestrogen. (4)



# Inheritance, variation & evolution

## Easier questions

1) A cat breeder noticed that four kittens from one Siamese cat mother had a new blue colour at the tip of their tails.

   The cat breeder wants to use selective breeding so that all new kittens have blue tail tips.

   Describe the process of selective breeding the cat breeder could use. (3)

2) Stem cells from human embryos can differentiate into most types of human cell.

   Research is being done into the use of embryonic stem cells in medical treatments.

   The long-term effects of using embryonic stem cells in patients are not well understood.

   In therapeutic cloning, human embryos are produced using a donated human egg cell and a cell from the patient.

   - The embryo produced contains the same genetic information as the patient.
   - Stem cells are taken from the embryo and stimulated to divide to form cells the patient needs.
   - The embryo is then destroyed.

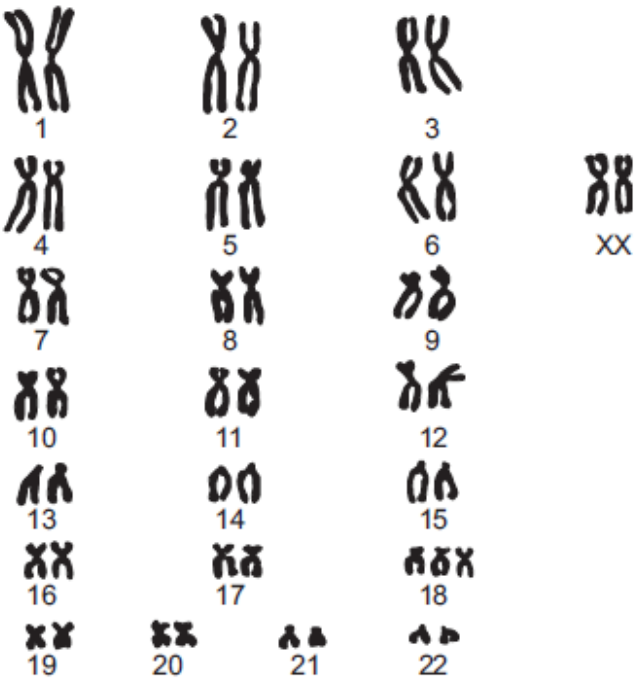
   Suggest **two** advantages of therapeutic cloning. (2)

3) Genetic disorder **E** is a condition caused by a change in the chromosomes.

   **Figure 1** shows the chromosomes from one cell of a person with genetic disorder **E**.

   Describe how the chromosomes shown in **Figure 1** are different from the chromosomes from a person who does not have genetic disorder **E**. (2)

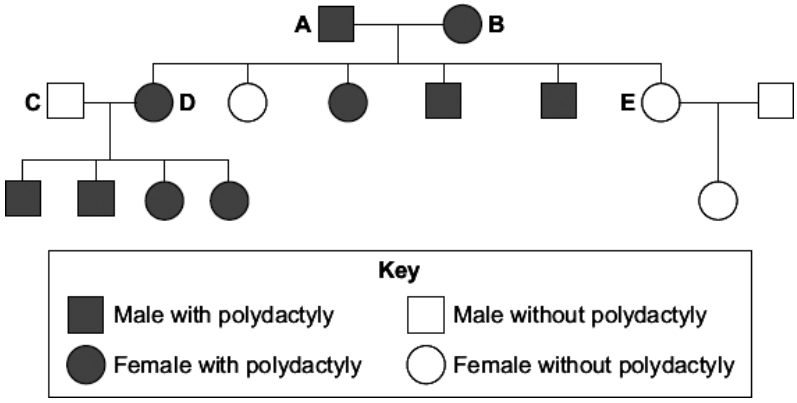
**Figure 1**



# Harder questions

4) Meiosis and mitosis are different types of division in human cells. Compare the two processes by referring to where each takes place and the kind of products that are made. (6)

5) The family tree shows the inheritance of polydactyly in three generations of cats.




What combination of alleles did the original parents, **A** and **B**, have?

Explain how you work out your answer. You may use a genetic diagram in your answer.

Use the symbol **H** to represent the dominant allele. Use the symbol **h** to represent the recessive allele. (4)

6) A poisonous chemical has been used to kill head lice for many years.

Recently, the chemical has not been as successful at killing head lice. Many head lice now survive treatment with the chemical.

Explain in terms of **natural selection** why most head lice are no longer killed by the chemical. (3)

7) *Bacillus thuringiensis* (Bt) is a soil bacterium.

It produces a poison that kills several different species of insect that feed on cotton plants. Over 90% of the cotton plants grown in Australia, the USA and China today are genetically modified to produce the Bt poison, resulting in less crop damage.

Explain in detail how cotton plants can be genetically modified to produce the Bt poison. (4)

8) Carl Woese developed the 'three-domain system' of classification. Describe the 'three-domain system' of classification. (3)

# Ecology

## Easier questions

1) Students investigated plants in a school field.

**Figure 1**

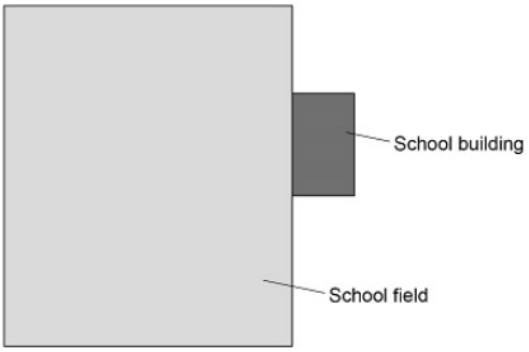



**Figure 1** is a diagram of the school building and school field.

The students used a transect to investigate the distribution of plants on the school field at different distances from the school building.

**Figure 2** shows the equipment the students used.

**Figure 2**


*Not to scale*

Describe a method the students could use to investigate the distribution of plants on the school field at different distances from the school building. (4)

2) Global warming may reduce biodiversity in some areas.

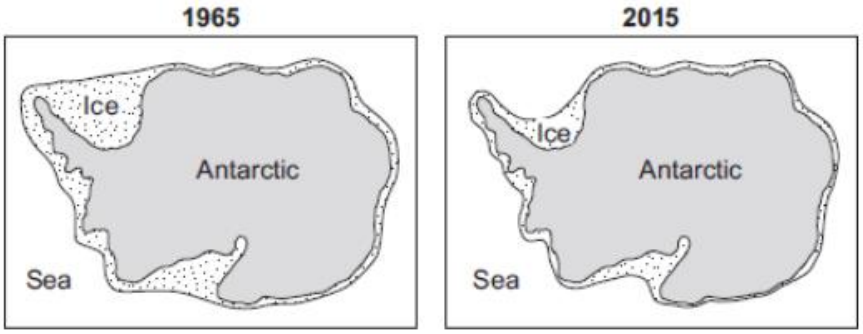
Give **two** effects of global warming that could reduce biodiversity in an area. (2)

3) Adelie penguins and chinstrap penguins live in the Antarctic at temperatures below 0 °C.

Adelie penguins spend most of their time on the ice around the Antarctic.
Chinstrap penguins live mainly in the sea around the ice.
Since 1965 the number of Adelie penguins has **decreased** by 6 million.

**Figure 2** shows changes to the ice around the Antarctic over the past 50 years

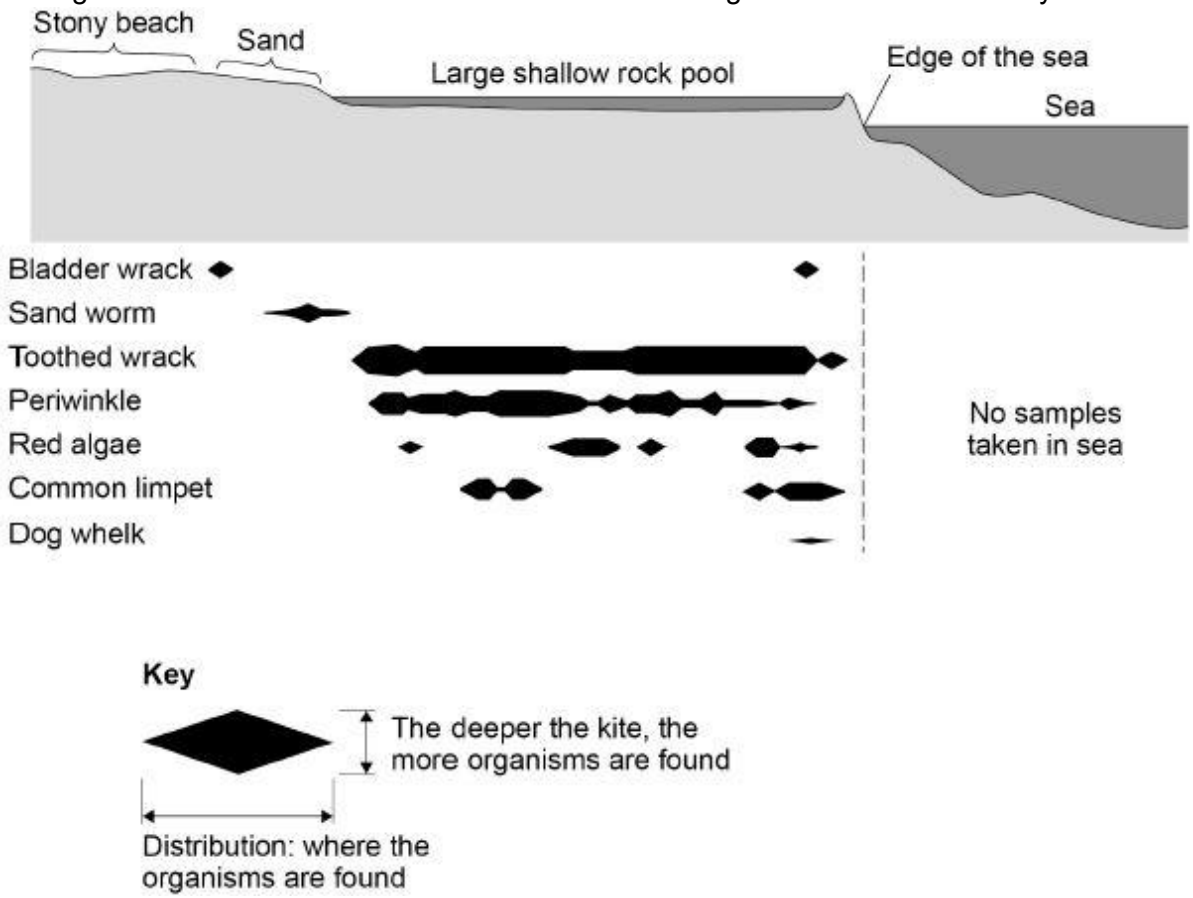
**Figure 2**




Use information from **Figure 2** to explain why the number of Adelie penguins has decreased since 1965. (2)

# Harder questions

4) The figure below shows the results from a similar investigation on the same rocky shore.




The shallow rock pool in the figure above has a **higher biodiversity** than the sand or the stony beach. Suggest **three** reasons why. (3)

5) Describe how carbon is recycled in a woodland community. (6)

6) In January 2011 more than 600 000 people collected results for the UK national bird survey. People recorded the number of each species of bird they saw in 1 hour on 1 day in their garden. Some of the results are shown in the table below.

A student looked at the table and said:

"In the UK, house sparrows are more common than blackbirds." Suggest **three** reasons why the student's statement may **not** be true. (3)

| Species | Mean number of birds seen per garden | Percentage of gardens in which the bird was seen |
|---|---|---|
| House sparrow | 4.1 | 64.5 |
| Starling | 3.9 | 51.3 |
| Blackbird | 3.2 | 95.2 |
| Goldfinch | 1.5 | 33.5 |

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# MODEL ANSWERS

## Cell biology

1) A yellow leaf has less chlorophyll, the green pigment, in it, which means that there will be less photosynthesis. If there is less photosynthesis then there is less glucose and less proteins being made for growth.

2) The root has root hair cells which have a large surface area for taking up water. The root also extends deep into the soil to find water.

3) The student would measure the mass of the potato chip before putting it in water. Place the potato in the water for 30 minutes, then measure the mass again. To find the rate, divide the change in mass by the time, 30 minutes.

4) An increased heart rate increases the blood flow meaning that more oxygen is delivered to the muscles. There will therefore be more aerobic respiration and less anaerobic respiration taking place.

5) Active transport is a process which requires energy. This energy used in active transport is released during respiration, a chemical reaction involving oxygen and glucose. A higher concentration of oxygen in the tissue surrounding the small intestine allows a greater rate of respiration and therefore more energy to be made available for the active transport.

6) The surface area of the model 1 is (0.5x0.5)x6 = 1.5cm$^2$. Its volume is 0.5x0.5x0.5=0.125cm$^3$. Its SA:Vol ratio is therefore 1.5:0.125. For model 2 the surface area is (1x1)x6 = 6cm$^2$. Its volume is 1x1x1=1cm$^3$. Its SA:Vol ration is therefore 6:1. So that I can compare them the ratio for model 1 should be converted to the same scale.

   Model 1's ratio becomes 12:1 and model 2's is 6:1.

   This shows that as the length of a side increases the surface area to volume ratio decreases.

7) An animal has a smaller surface area to volume ration than the bacterium and therefore oxygen in the air would have a greater distance to diffuse to reach the middle of the organism. This means that the centre of the organism would not receive the enough oxygen for respiration. A transportation system such as the circulatory system is required to transport the oxygen from a surface to deeper within the organism.

8) As the water is in a higher concentration outside of the cell and it is separated by a partially permeable membrane the water will move by osmosis from outside the cell to inside the cell down the water's concentration gradient. This is a passive process and requires no energy transfer. The phosphate ions are found in a higher concentration outside of the cell. They will move by diffusion though the cell membrane down their concentration gradient. This is also a passive process and requires no energy. The magnesium however is found in a higher

concentration inside the cell meaning that the ions will need to move up their concentration gradient. This requires a process called active transport which transfers energy from respiration.

# Organisation

1) A stent keeps the coronary artery open so that the blood can carry glucose and oxygen to the heart muscle cells for respiration.

2) The red water enters the roots and moves up the stem through the xylem to the leaf. The red colouring is left in the leaf and the water evaporates through the stomata.

3) In food sample D the iodine stayed orange, this is the negative test for starch, so there was no starch. The benedicts reagent changed from blue to orange, which is the positive test for glucose, so sample D contains glucose. Finally, the biuret changed from blue to lilac, the positive test for protein, meaning that there was protein in the sample.

4) The transpiration stream is the movement of water from the root hairs where is absorbed by osmosis to the leaves, via the xylem, where it evaporates through the stomata.

5) Blood is carried away from the heart by arteries. They have a thick layer of muscle and elastic tissue with a narrow lumen. Conversely veins have thinner muscle and elastic tissue and a much wider lumen. Due to the lower blood pressure that this causes in the veins they also have valves to prevent backflow. Arteries do not need these valves as their pressure is higher.

6) Blood leaves the lungs through the pulmonary vein, enters the left atrium of the heart and then into the left ventricle. It is then squeezed out of the left ventricle through the aorta which carries it to the rest of the body.

7) Starch is the substrate for amylase as its active site a complementary shape to that of the starch. When the starch is held in the active site bonds within the starch molecule are broken.

8) Blood leaves the lungs through the pulmonary vein, enters the left atrium of the heart and then into the left ventricle. It is then squeezed out of the left ventricle through the aorta which carries it to the rest of the body.

9) The potassium ions move into and increase the concentration of the solution inside the guard cells. The high solute concentration is separated from the lower concentration outside of the cell by a partially permeable membrane. This causes water to move into the cells by osmosis. The water makes the cells swell up unevenly as the inner cell wall is thicker than the outer wall.

# Infection & response

1) Vaccines make people immune to a disease. This means that there are fewer people to pass the pathogen onto mosquitos.

2) The body can defend itself against bacteria in two ways, providing a barrier to prevent them from entering the body and the immune system to destroy them if they do enter. The barriers are the skin to prevent bacteria from entering, and blood clots if the skin is cut. The stomach contains acid and the nose have cilia and mucus to trap bacteria.
The immune system contains white blood cells which destroy the bacteria if there is an infection by producing antibodies.

3) The trachea produces mucus to trap pathogens that are breathed in. It also contains cilia which move the mucus up and out of the airways, away from the lungs.

4) The concentration of antibodies increased for 3 weeks, decreased until week 4 and then increased again until week 7.

5) After the exposure to the measles virus there is a much greater number of antibodies produced, 0.8 after the vaccine compared to 7.2 after the exposure. The antibodies are also produced much more quickly in response to the exposure, 0.4 of a week after the vaccine compared to 0.2 of a week after exposure. Finally, the antibodies stayed at a higher concentration for longer after the exposure. All these differences are due to the white blood cells having been previously exposed to the measles antigen from the vaccine. The immune system is able to recognise the pathogen more quickly and the memory cells produced after the vaccination are able to produce the correct antibodies more rapidly.

6) Antibiotics have not been kept for when they are most needed and instead have been overused. Genetic mutation in the bacteria leads to variation in the effectiveness of the antibiotics. The most susceptible cells are killed leaving the more resistant ones. These reproduce creating populations of antibiotic resistant bacteria.

7) New drugs must be tested before use for several reasons. Firstly, it is important to check that they are not harmful to the patient. Secondly, the drug has to be evaluated on how well it treats the disease and finally it is important to check that the new drug does not interact with any other medication that the patient might be taking.

8) Bacteria produce toxins which damage cells. Viruses damage or kill cells when they leave them after reproducing.

# Bioenergetics

1) The breathing rate of the student is 12 breaths per minute when at rest. When walking it is twice as fast as at rest, 24 breaths per minute, and when running 5 times as fast as at rest, 60 breaths per minute. The breathing rate when running is also a little more than twice as fast as when walking.

2) When exercising the body needs to do more respiration to provide more energy for contracting muscles. The breathing rate and the depth of breathing increases, this is to provide more oxygen for respiration, and to remove waste carbon dioxide. The increase in respiration produces more heat energy which must be transferred to the environment. In response to the heat the body begins to sweat, and vasodilation

occurs in the skin to bring the warm blood closer to the surface of the body. The heat evaporates the sweat, cooling the body down.

3) The glucose from photosynthesis is used in respiration for energy, to make cellulose for cell walls, to make fats and proteins for growth and for other metabolic processes.

4) The rate of photosynthesis increases as the light intensity increases until it reaches 200 arbitrary units, at which it levels off and stays constant.

5) Photosynthesis is an enzyme driven chemical reaction and therefore it is affected by temperature. If the temperature decreases so will the rate of reaction. If the temperature increases the rate will increase until the enzyme denatures at which point the reaction will stop.

6) Anaerobic respiration in muscle and plant cells both occur without oxygen and they both release a small amount of energy. However, during the process plant cells produce ethanol and carbon dioxide, whilst muscle cells produce lactic acid.

7) Due to the Nitrate ions being in a greater concentration inside the plant cells than the surrounding area they are absorbed from the soil by active transport. The process of active transport requires energy that is released by respiration. Respiration requires oxygen which would not be available if the surrounding ground was flooded. This means less respiration, less energy available and therefore less active transport.

8) Carbon dioxide from the air enters the leaf through the stomata. The carbon dioxide reacts with water in the chloroplasts in a process called photosynthesis, making glucose. The glucose is transported through the plant to the roots through the phloem. It is then converted to starch to be stored in the sweet potatoes.

# Homeostasis and response

1) The advantages of the combined pill are that it is easy to take, very effective and free on the NHS, however it can cause headaches/side effects, and you must remember to take it every day.

   The advantages of the condom are that you only need it when you have sex, there are no side effects, and it's very inexpensive, however it is not as reliable and more difficult to use as it may split or leak.

   The advantages of sterilisation is that it is 100% effective, however you will probably not be able to have a family, and there are risks of surgery.

2) The receptor detects the stimulus. The impulse passes along a sensory neurone to the spinal cord. It then passes through a relay neurone and into a motor neurone, where it travels to the muscle, which contracts.

3) Insulin causes glucose to be moved from the blood into the liver and muscle cells to be stored as glycogen.

4) The receptor detects a stimulus for example pressure or temperature. The receptor generates an electrical impulse which travels down neurone A, the sensory neurone, to the spinal cord. The impulse passes from the sensory neurone to a synapse by triggering the release of a chemical called a neurotransmitter. This chemical diffuses across the gap and stimulates a new electrical impulse in neurone B, the relay neurone. The spinal cord acts as a coordination centre and passes the

impulse to motor neurones across another synapse. This travels to the effector, usually a muscle, which carries out the response such as to move the arm.

5) A hormone is a chemical messenger that is produced by glands in the endocrines system which travels in the blood and binds to receptors on the surface of specific organs or tissues.

6) The part labelled X is the pituitary gland and is the site of production for many of the reproductive hormones. Normally FSH is released from the pituitary which stimulates follicle development during ovulation. Oestrogen in the contraceptive pill artificially inhibits the release of FSH from the pituitary and therefore there is no ovulation or egg release.

# Inheritance, variation & evolution

1) The breeder should choose a male and female cat with blue tail tips and breed them together. From the offspring they should choose those with blue tail tips to breed together again. They should repeat this process for several generations until all offspring have blue tail tips.

2) Therapeutic cloning using stem cells can be used to treat diseases in many different parts of the body as they can be used to make any type of tissue. They have a benefit over transplants because they are unlikely to be rejected.

3) The person has three copies of chromosome 18 meaning that they have 47 chromosomes in total, one more than they should have.

4) Mitosis and meiosis are two forms of cell division. Mitosis is a form of asexual cell division that takes place in somatic (body) cells. Meiosis is a form of sexual cell division that takes place in the ovaries and testes. Mitosis produces 2 identical diploid cells during a single cell division whereas meiosis produces 4 haploid cells that show variation. This happens during two divisions.

5) Polydactyly is a dominant trait and therefore the allele must be H. Non-polydactyly must be recessive and therefore is represented by a h. As some of the offspring of A and B do not suffer from polydactyly, they must have the genotype hh. The only way this could happen is if both parents were heterozygous Hh.

6) A mutation in the population of head lice led to variation of resistance against the chemical. Those with greater resistance survive the use of the chemical and breed. They pass the allele for the resistance onto the offspring leading to a resistant next generation.

7) The gene for the Bt poison is cut from the bacterial chromosome using transcription enzymes and transferred to the chromosomes of the cotton plants where it is expressed.

8) The three-domain system includes the archaea, simple primitive bacteria, the prokaryota, the true bacteria and the eukaryote, which includes plants and animals.

# Ecology

1) The student should lay out the tape measure so that it starts at the school building and moves outwards towards the field. They should place the quadrat at set

intervals along the tape. The should count the number of plants of each species present in the quadrats. They should repeat the process moving the quadrat to another location.

2) Global warming can cause a change in rainfall, leading to droughts or flooding.

3) Adelie penguins spend most of their time on the ice. Between 1965 and 2015 the amount of ice has decreased so there is less habitat for them to live and breed.

4) The shallow rock pool has a greater biodiversity due to its stability of conditions. It does not dry out regularly so more plants can grow there, its temperature will remain more constant due to the water and there will be a greater range of food sources for the organisms to eat.

5) Plants take in carbon dioxide from the atmosphere and undertake photosynthesis. The carbon is locked into molecules of carbohydrates, fats and proteins. The carbon is transferred to animals by feeding and used in many different metabolic processes. One of these processes, respiration, releases the carbon back into the atmosphere as carbon dioxide. Excretion releases some more of the carbon back into the environment. The rest of the carbon is integrated into the body of the animal. When an animal or a plant dies it is broken down by decomposers. They also do respiration which releases this final carbon back into the atmosphere.

6) There are a number of reasons why the statement could be incorrect. First the study only happened for 1 hour, this is not enough time to produce reliable numbers. Secondly, these birds were all counted in gardens, it is possible that not all these birds have gardens as their main habitat. Thirdly, the public was asked to identify the birds, it is possible that they may have misidentified. Finally, if 4.1 house sparrows were found per garden and they were found in 64.5 gardens that would give a value of 264 house sparrows. If you do the same calculation for the blackbirds, you find 305 blackbirds showing that blackbirds were more common.