PEARSON EDEXCEL GCSE BIOLOGY (HIGHER) · 1BI0

BIOLOGY



EXAM QUESTION PACK

TOPIC 2: CELLS AND CONTROL (PACK 2)

SCORE	PERCENTAGE
/58	%

STEMUP

These questions belong to Pearson Edexcel, not to us.

The examination questions, mark schemes and examiner comments in this pack were written and published by Pearson Edexcel. They are past assessment materials, reproduced here so that students can revise from them.

What we do not own

STEMUP is not affiliated with Pearson Edexcel and does not own, and makes no claim to own, any of the question, mark scheme or examiner report material in this pack. Pearson Edexcel has not endorsed, approved or been involved in the production of it. Pearson Edexcel and the qualification titles used here belong to their respective owners and appear for identification only.

Where to find the originals

Pearson Edexcel publishes its past papers, mark schemes and examiner reports. Always check the current specification at qualifications.pearson.com before you revise, because content and wording can change between series.

If you hold the rights to any material in this pack and would like it amended or removed, contact admin@stemup.co.uk and we will act on it.

Q1.

Macular degeneration is a defect of the eye that occurs when some cells of the retina begin to break down.

Embryonic stem cell therapy has been used to improve the vision of some patients with macular degeneration.

Explain how embryonic stem cells could be used to treat macular degeneration.

(2)

.....

.....

.....

.....

(Total for question = 2 marks)

Q2.

Some painkillers prevent neurotransmitters binding to receptors in a synapse.

Explain how a signal is transmitted at a synapse and how the painkillers reduce the pain felt by the person.

(6)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)

Q3.

*Some painkillers prevent neurotransmitters binding to receptors in a synapse.

Explain how a signal is transmitted at a synapse and how the painkillers reduce the pain felt by the person.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)

Q4.

The UK driving test requires a person to be able to read a number plate at a distance of 20.5 metres.

Some people are short-sighted so cannot read the number plate at this distance.

Explain how a diverging lens corrects short-sightedness.

You may draw a diagram to help with your answer.

.....

.....

.....

.....

(Total for question = 2 marks)

Q5.

Arthritis is a condition that occurs when cells in joints get damaged or destroyed.

Stem cell therapy can be used to treat arthritis.

Discuss the benefits and risks of using stem cell therapy to treat arthritis.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 4 marks)

Q6.

Arthritis is a condition that occurs when cells in joints get damaged or destroyed.

Stem cell therapy can be used to treat arthritis.

Discuss the benefits and risks of using stem cell therapy to treat arthritis.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 4 marks)

Q7.

Figure 1 shows an eye.

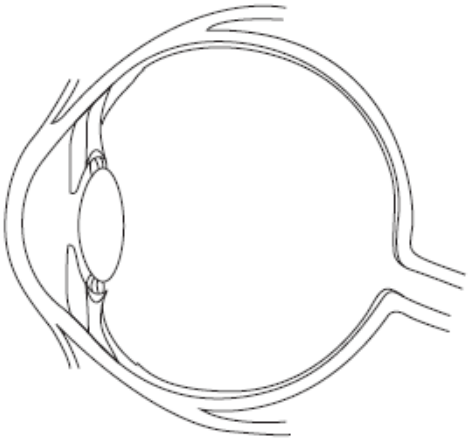


Figure 1

A student was given the hypothesis 'People with brown eyes are more likely to be short-sighted than people with blue eyes.'

Devise a plan to test this hypothesis.

(3)

.....

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q8.

Figure 5 shows a plant cell in anaphase of mitosis.



Figure 5

Describe what occurs during anaphase of mitosis.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q9.

Describe what is produced when a single cell divides by mitosis.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q10.

Describe what is produced when a single cell divides by mitosis.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q11.

In 2012, two scientists were awarded the Nobel prize for their research on stem cells.

They showed that adult cells could be reprogrammed to become cells with the properties of embryonic stem cells.

Describe the possible benefits of this research.

(3)

.....

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q12.

In 2012, two scientists were awarded the Nobel prize for their research on stem cells.

They showed that adult cells could be reprogrammed to become cells with the properties of embryonic stem cells.

Describe the possible benefits of this research.

(3)

.....

.....

.....

.....

.....

.....

.....

(Total for question = 3 marks)

Q13.

Figure 2 shows a banana plantation.



© warmer/Shutterstock

Figure 2

After the bananas have been harvested, the old plants are cut down.

The suckers then develop into mature plants producing the next crop of bananas.

The tip of each sucker contains a group of cells called a meristem.

(i) Describe the function of a meristem in the growth of a plant.

(2)

.....

.....

.....

.....

(ii) A student took a sample of cells from a meristem to view under a light microscope.

Describe how the student would prepare a microscope slide using these cells.

(3)

.....

.....

.....

.....

.....

(Total for question = 5 marks)

Q14.

Figure 2 shows a banana plantation.



© warmer/Shutterstock

Figure 2

After the bananas have been harvested, the old plants are cut down.

The suckers then develop into mature plants producing the next crop of bananas.

The tip of each sucker contains a group of cells called a meristem.

(i) Describe the function of a meristem in the growth of a plant.

(2)

.....

.....

.....

.....

.....

(ii) A student took a sample of cells from a meristem to view under a light microscope.

Describe how the student would prepare a microscope slide using these cells.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 5 marks)

Q15.

* Figure 8 shows cells undergoing mitosis.

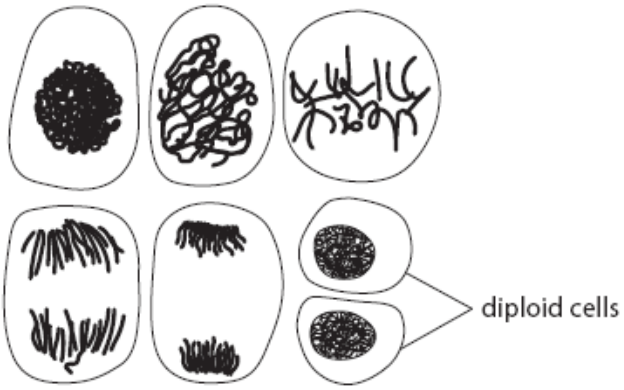


Figure 8

Describe how the stages of mitosis result in the formation of two diploid cells.

(6)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)