

Name:

Edexcel Style

Combined Science GCSE

Cells and Control Test

(Levels 4–9)

Date:

Time allowed: 50mins

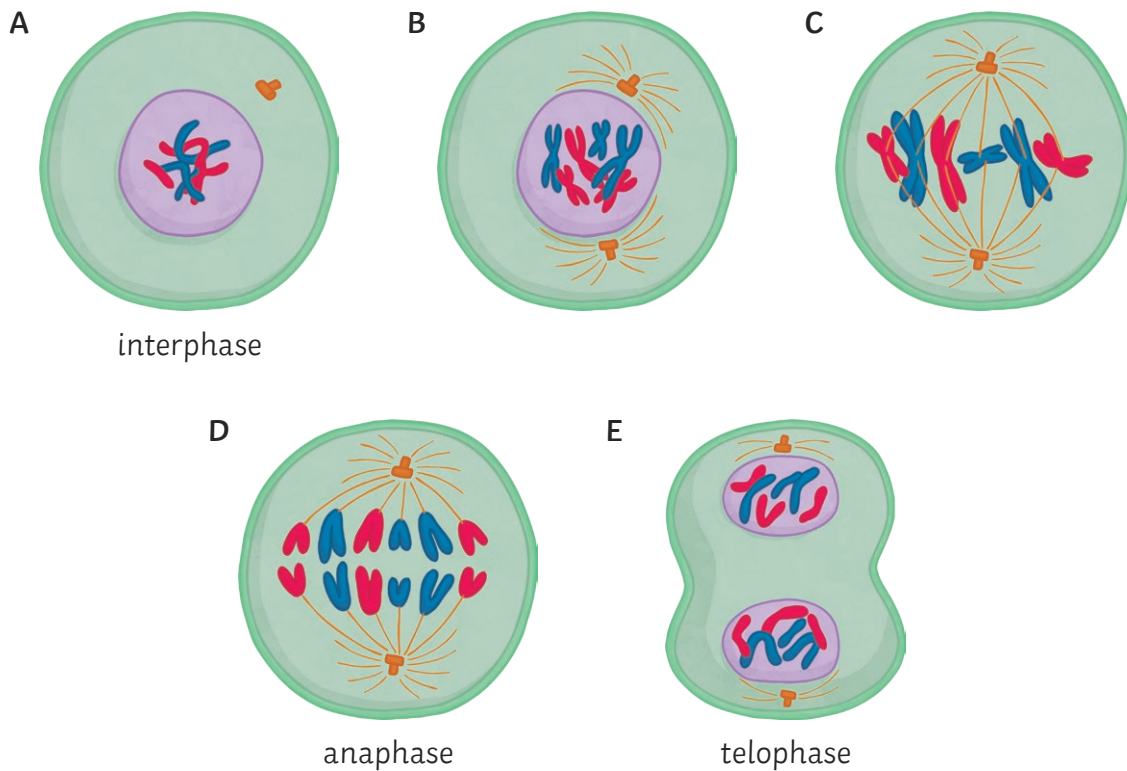
Question	Links to Student Progress Sheet	Score	Total marks Available
1	2.1, 2.2, 2.3		6
2	2.4, 2.5a, b		7
3	2.7		6
4	2.8a, b, 2.9		10
5	2.8b		6
6	2.13a, b		8
7	2.14, 2.13c		7
Total			50

Score	Estimated Grade
47 – 50	9
40 – 46	8
33 – 39	7
28 – 32	6
24 – 27	5
20 – 23	4
0 – 19	U

Please be aware that these grade boundaries are Twinkl's own, and may not be in-line with Edexcel's own.

Area for Improvement:

1. (a) The diagrams below show the stages of the cell cycle.



Put a tick (✓) in the box next to the pair of answers which are the names of stages B and C above.

(1)

- ☐ B is metaphase, C is prophase
- ☐ B is prophase, C is metaphase
- ☐ B is prophase, C is cytokinesis
- ☐ B is cytokinesis, C is prophase

(b) Describe what happens during telophase.

(2)

(c) Complete the sentence by putting a tick (✓) in the box next to your answer.

(1)

Mitosis is important for...

☐ formation of gametes.

☐ sexual reproduction.

☐ formation of zygotes.

☐ asexual reproduction.

(d) Complete the table by putting a tick (✓) or a cross (✗) into each empty box.

(2)

	Mitosis	Meiosis
Produces body cells		✗
Produces four daughter cells		✓
Daughter cells are varied		✓

(Total for Question 1 = 6 marks)

2. (a) Complete the sentence by putting a tick (✓) in the box next to your answer.

(1)

Uncontrolled division in a cell can lead to...

- ☐ multiple pregnancies.
- ☐ weight gain.
- ☐ cardiovascular disease.
- ☐ cancer.

(b) Use words from the box below to complete the following sentences about animal growth.

(2)

elongate	increasing	mitosis
divide	decreasing	differentiate

Animals grow by _____ the number of cells.

Most adult cells can no longer _____ into specialised cells.

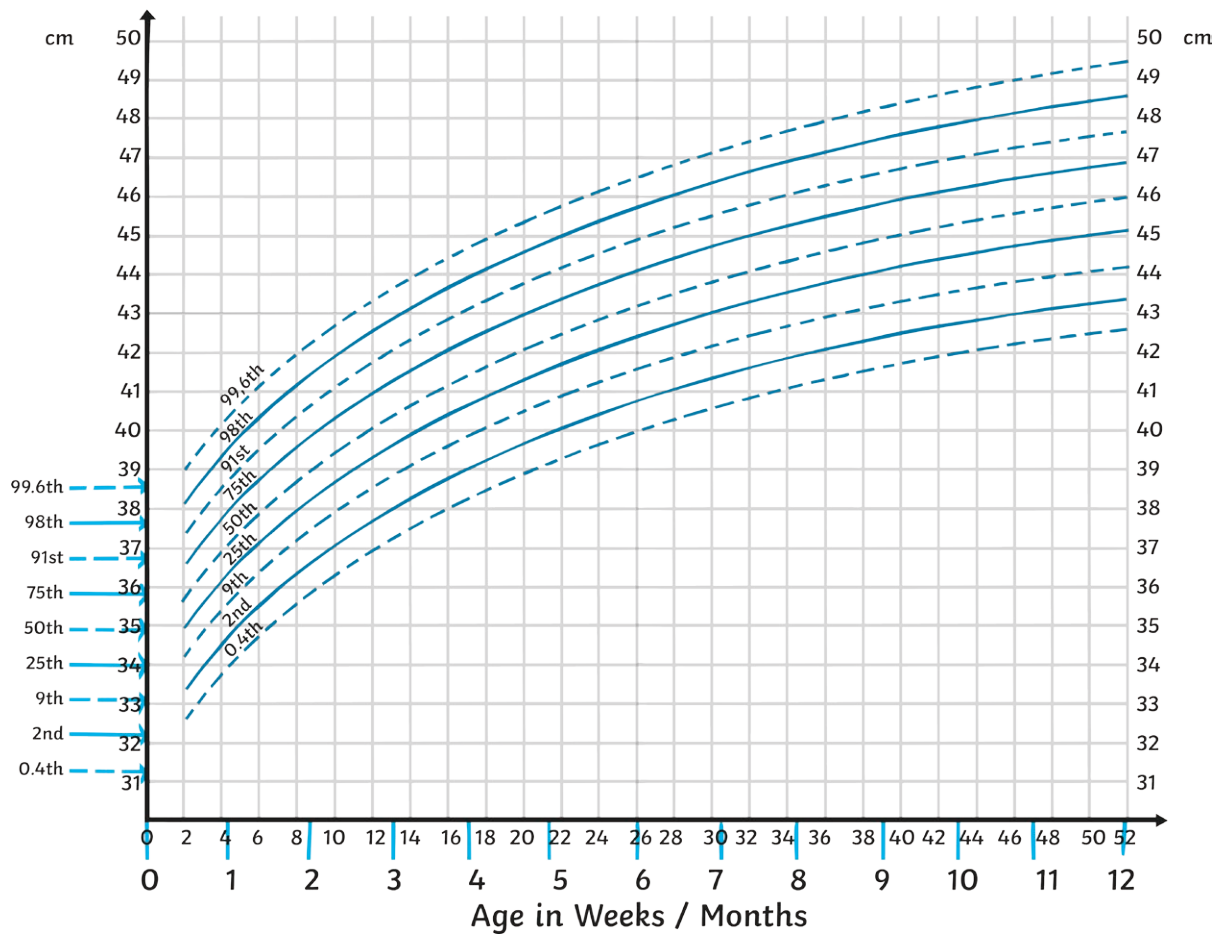
(c) Compare plant growth and animal growth in terms of cells and cell division.

(4)

(Total for Question 2 = 7 marks)

3. (a) Below is a centile health chart for head circumference in boys.

A health visitor measures the head circumference of a 16-week-old baby boy. She records the head circumference as 43cm.



From the chart, which percentile is the baby in?

(1)

☐ 99th

☐ 98th

☐ 91st

☐ 75th

- (b) The health visitor arranges another appointment to measure the baby's head circumference 10 weeks later.

Use the chart to predict what the baby's head circumference will be at this appointment.

(1)

_____ cm

- (c) A 12 month old baby has a mass of 12500g and a height of 82cm.

Calculate the BMI of the child using the equation given below.

(2)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m)}}$$

BMI = _____

- (d) Suggest why BMI is not recommended as a measure of healthy growth in children.

(2)

(Total for Question 3 = 6 marks)

4. (a) Complete the sentence by putting a tick (✓) in the box next to your answer.

(1)

Stem cells are...

- ☐ an undifferentiated cell, which cannot become specialised.
- ☐ a differentiated cell, which cannot become specialised.
- ☐ an undifferentiated cell, which can become specialised.
- ☐ a differentiated cell, which can become specialised.

(b) Suggest how doctors may use stem cells.

(3)

(c) Discuss the use of embryonic stem cells in research.

(6)

[illegible]

(Total for Question 4 = 10 marks)

5. (a) In plants, which organs can meristems differentiate into?

(1)

Tick one box below to indicate your answer.

☐ xylem and flowers

☐ xylem and phloem

☐ roots and leaves

☐ roots and phloem

(b) Use all of the words from the box below to complete the following sentences about meristems.

(5)

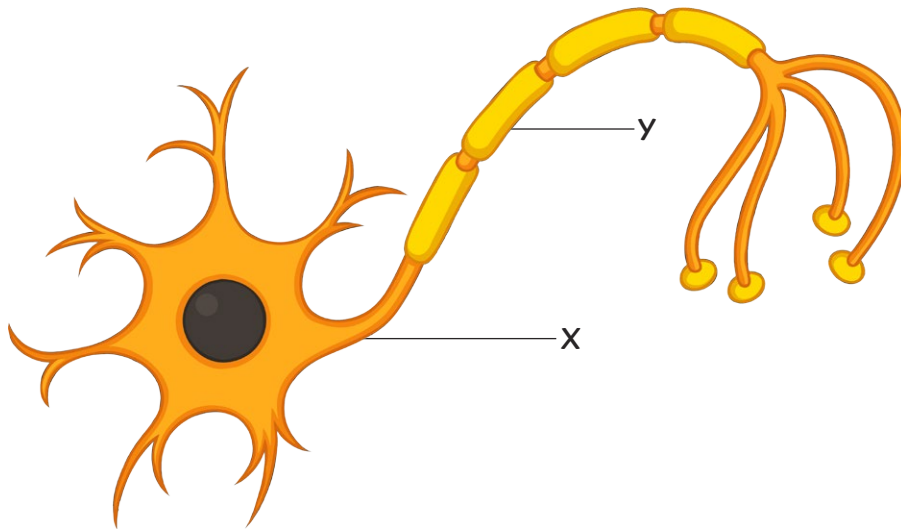
flowers	length	leaves
height	width	

Plant meristems are unspecialised cells which divide to produce cells which increase the _____ of the roots, the _____ of the stem and the _____ of the plant overall.

Meristems can also differentiate to form the cells which develop into the _____ and _____.

(Total for Question 5 = 6 marks)

6. (a) The diagrams below shows part of the nervous system.



What is the name of this part of the nervous system?

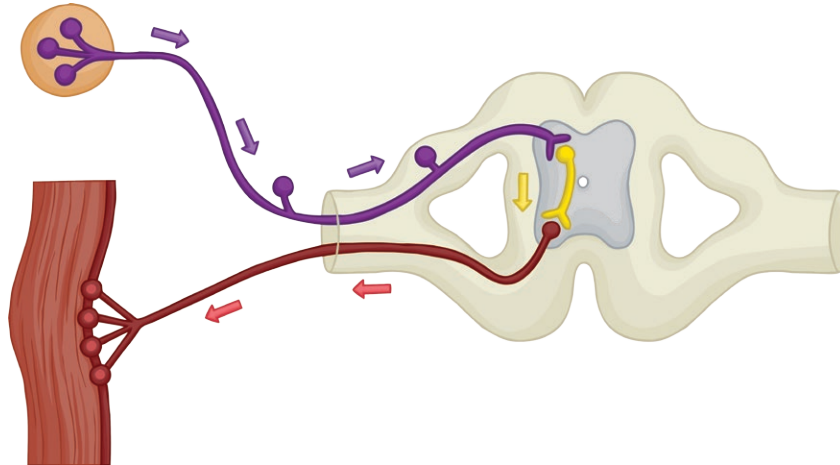
(1)

(b) Put a tick (✓) in the box next to the pair of answers which are the names of the parts labelled X and Y above.

(1)

- ☐ X is a dendrite, Y is a nucleus.
- ☐ X is an axon, Y is a cell membrane.
- ☐ X is a dendrite, Y is cytoplasm.
- ☐ X is an axon, Y is myelin sheath.

- (c) The diagram below shows how different structures in the body transmit messages which coordinate the body's actions.



Use the diagram to complete the table below.

(4)

Part of Nervous System	Function
	Receives stimulus from the environment.
	Carries the message towards the central nervous system.
	Passes information through the central nervous system.
	Carries the message away from the central nervous system.

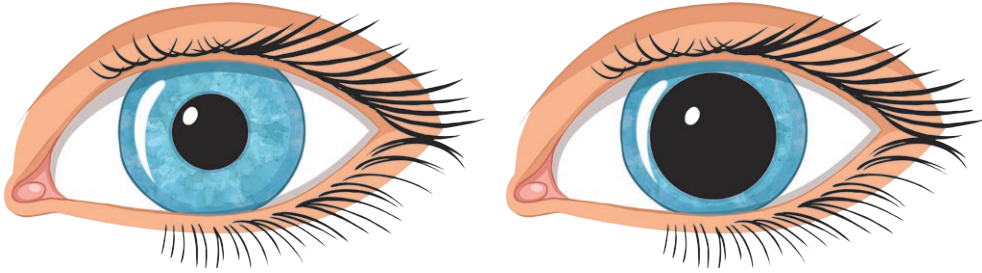
- (d) What is the function of the myelin sheath and why is this needed?

(2)

(Total for Question 6 = 8 marks)

7. (a) The diagram below shows how the diameter of the pupil in the eye changes in different light intensity.

The difference is caused by a reflex action.



Complete the sentence by putting a tick (✓) in the box next to your answer.

(1)

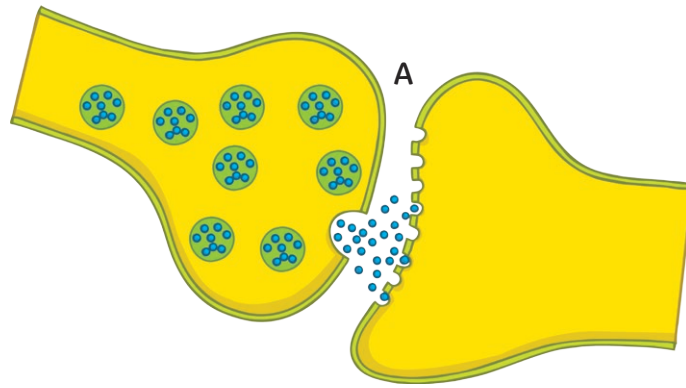
A reflex action is a...

- ☐ fast and conscious response to a stimulus.
- ☐ fast and unconscious response to a stimulus.
- ☐ slow and conscious response to a stimulus.
- ☐ slow and unconscious response to a stimulus.

- (b) Describe the parts of the reflex arc which are involved in producing a reflex action.

(4)

(c) The diagram below shows part of the nervous system.



What is the name of the part labelled A?

(1)

(d) How is a message transmitted across the part labelled A in question 6c?

(1)

(Total for Question 7 = 7 marks)

TOTAL FOR PAPER = 50 MARKS