

GCSE Biology (9 – 1)

Specialised Cells

Name:

Group:

Instructions

- Read each question carefully before you begin to answer it.
- Use black ink or black ball-point pen for your answers.
- Fill in the boxes at the top of this page with your name and group.
- Attempt to answer every question in the booklet.
- Answer the questions in the spaces provided – there may be more space than you need in some answer spaces.
- Calculators may be used for this booklet.
- For any calculations, you **must** show all your working.
- Any and all drawings or graphs should be completed in pencil.



For markers use	
Question	Mark
1	/3
2	/6
3	/6
4	/6
5	/7
6	/10
7	/6
Total	/44
%	
Grade	

Information

- The maximum mark for this paper is 44 marks.
- The marks for each question are shown in brackets.
- Please be aware that good English and clear presentation are required in your answers.



1. The figure below shows four different specialised cells.

- a) Which cells are involved in the transport of water?
Circle the letter of the correct answer.



A – 1 and 3

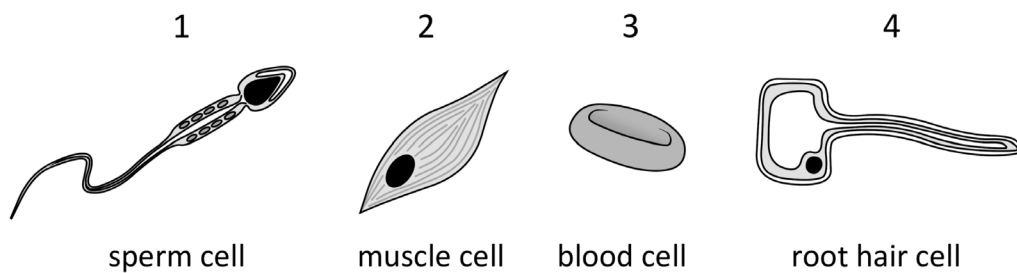
B – 1 and 2

C – 2 and 3

D – 2 and 4

(1 mark)

b) The figure below shows four different specialised cells.



Which cells provide a large surface area for absorption?
Circle the letter of the correct answer.

A – 1 and 3

B – 1 and 2

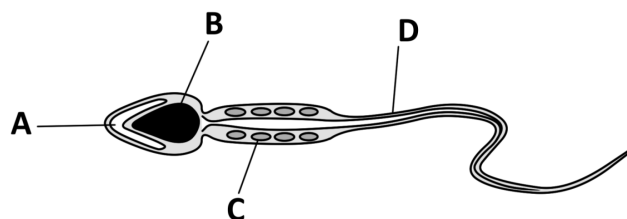
C – 2 and 3

D – 3 and 4

(1 mark)

c) The figure below shows a human sperm cell.

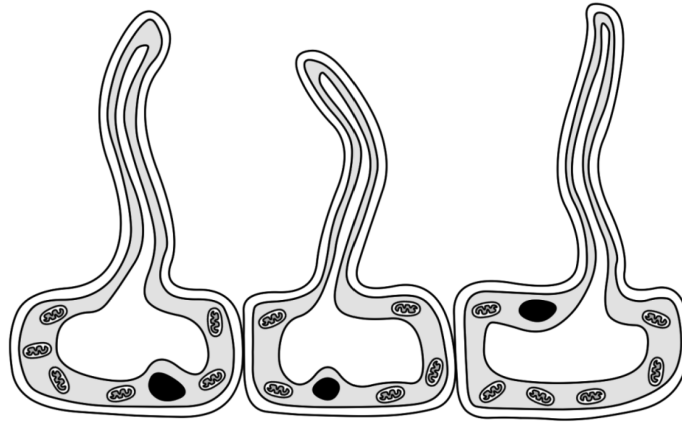
Which structure of the sperm cell digests the cell membrane of an ovum cell?
Circle the letter of the correct answer.



(1 mark)

(Total for Question 1 is 3 marks)

2. A student entered a competition to build models of plant root hair cells. The figure below shows the plan that student used to build their model.



- a) Describe how a root hair cell is adapted for its role in the absorption of water and minerals from the soil.

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(4 marks)

- b) Explain why there are **no** chloroplasts present in root hair cells.

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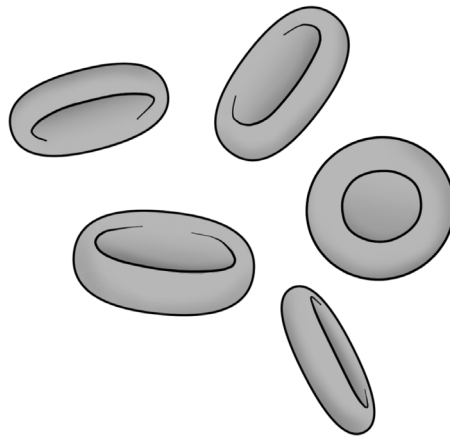
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(2 marks)

(Total for Question 2 is 6 marks)

3. The figure below shows a sample of red blood cells as seen under an electron microscope.



Red blood cells are specialised cells that transport oxygen around the body.

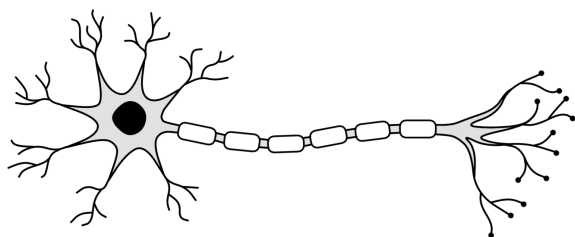
Describe the function and adaptations of a red blood cell that allow it to efficiently carry out its function.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

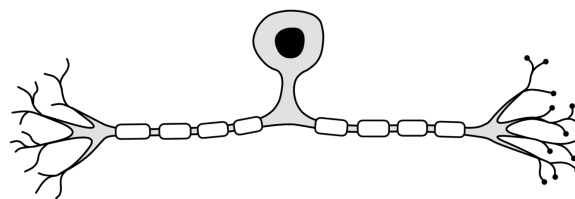
(6 marks)

(Total for Question 3 is 6 marks)

4. The figure below shows two different types of neurone cells. A motor and a sensory neurone.



Motor neurone



Sensory neurone

Neurone cells are adapted to carry electrical impulses throughout the nervous system.

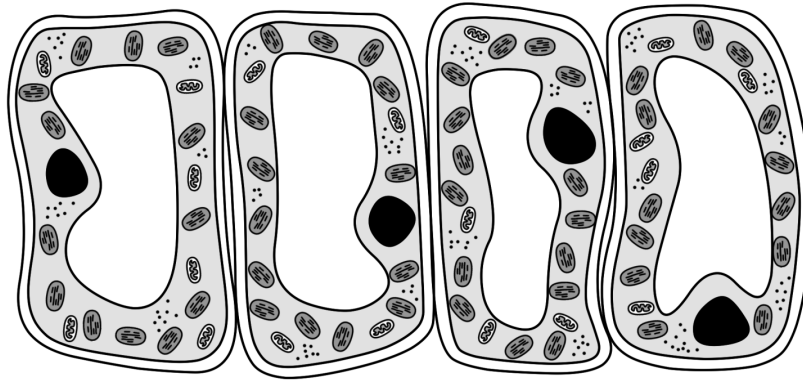
State the function of both motor and sensory neurones and describe the adaptations of neurones that allow them to efficiently carry out its function.

[illegible]

(6 marks)

(Total for Question 4 is 6 marks)

5. A student entered an art project and wanted to use a repeating design that used palisade cells. The figure below shows the diagram of the cells that the student intended to use in their pattern.



- a) Describe the function of the chloroplast in a palisade cell.

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(1 mark)

- b) Explain why palisade cells contain a large number of chloroplasts.

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(2 marks)

- c) Palisade cells have a large vacuole. Explain the role of the vacuole in a palisade cell and describe how it contributes to the cell's overall function

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(2 marks)

Palisade cells are surrounded by a cell wall.

- d) State what the cell wall of a plant cell is made of and give function of the cell wall in a palisade cell.

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(2 marks)

(Total for Question 5 is 7 marks)

6. Humans reproduce sexually.

a) In terms of gametes, describe what is meant by sexual reproduction.

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(2 marks)

b) The figure below shows the human gametes, Sperm and Ovum.

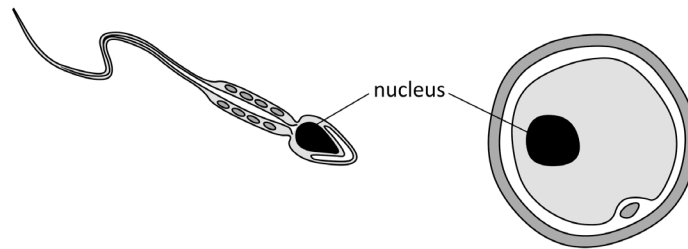


Diagram **not** to scale.

In terms of how the gametes are adapted for their roles.

Describe **two similarities** between the sperm cell and the ovum cell.

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(4 marks)

c) In terms of how the gametes are adapted for their roles.

Describe **two differences** between the sperm cell and the ovum cell.

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(4 marks)

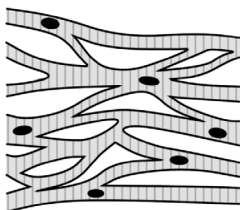
(Total for Question 6 is 10 marks)

7. The figure below shows a small section of cardiac muscle and skeletal muscle.

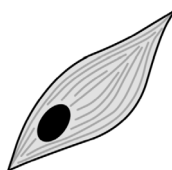
Compare and contrast the function and adaptations of cardiac muscle and skeletal muscle.

Your answer should include details of their roles in the body and how their structures are suited to those roles.

cardiac muscle



skeletal muscle

This image shows a full page of white paper with horizontal dotted lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(6 marks)

(Total for Question 7 is 6 marks)