

OCR Gateway GCSE Biology A

Paper 1: Cell-Level Systems, Scaling Up and Organism-Level Systems (B1–B3)

Foundation Tier — Separate Science · Time: 1 hour 45 minutes · Total: 100 marks

Foundation Tier — Separate Science

Name:	
Centre number:	Candidate number:

- Answer **ALL** questions.
- Use black ink or black ball-point pen.
- Write your answers in the spaces provided.
- The marks for questions are shown in brackets.
- Total marks: 100

Question 1

(a) Which of the following is found in BOTH plant and animal cells?

[1 mark]

Tick **ONE** box.

- A. Cell wall
- B. Chloroplast
- C. Permanent vacuole
- D. Nucleus

(b) Active transport differs from diffusion because active transport:

[1 mark]

Tick **ONE** box.

- A. moves substances from high to low concentration
- B. only moves water
- C. requires energy (ATP)
- D. does not require a membrane

(c) Which of the following describes the role of phagocytes?

[1 mark]

Tick **ONE** box.

- A. Produce antibodies specific to antigens
- B. Engulf and digest pathogens
- C. Transport oxygen in the blood
- D. Produce hormones in response to pathogens

(d) What is the correct order of the hierarchy of organisation?

[1 mark]

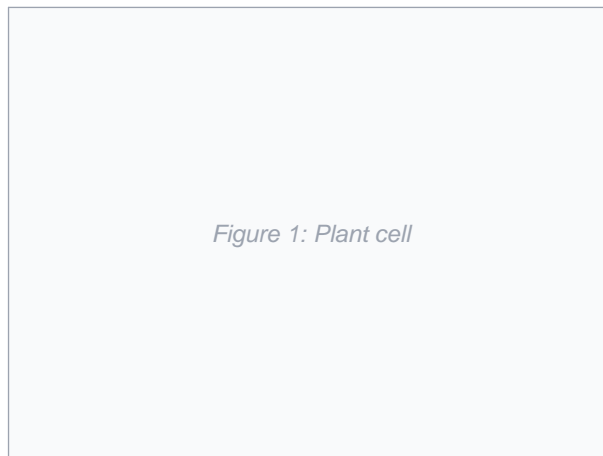
Tick **ONE** box.

- A. Organ → Cell → Tissue → Organism → Organ system
- B. Cell → Tissue → Organ → Organ system → Organism
- C. Tissue → Cell → Organ → Organism → Organ system
- D. Cell → Organ → Tissue → Organ system → Organism

Total for Question 1

Question 2

Figure 1 shows a plant cell.



(a) Label THREE structures that are found in a plant cell but NOT in an animal cell. For each, give one function.

[3 marks]

(b) State TWO differences between a plant cell and a bacterial cell.

[2 marks]

Total for Question 2

Question 3

A student investigates the effect of temperature on the digestion of starch by amylase.

(a) Describe the function of amylase.

[2 marks]

(b) Explain how temperature affects enzyme activity. Use the term "active site" in your answer.

[3 marks]

(c) State ONE variable the student should control and explain why.

[2 marks]

Total for Question 3

Question 4

The human heart is a double pump.

(a) Explain what is meant by a "double circulatory system."

[2 marks]

(b) Explain why the left ventricle has a thicker muscular wall than the right ventricle.

[2 marks]

(c) Describe TWO adaptations of red blood cells and explain how each helps red blood cells carry oxygen.

[3 marks]

Total for Question 4

Question 5

This question is about communicable disease.

(a) Describe how the body defends itself against pathogens using non-specific defences. Give THREE examples.

[3 marks]

(b) Explain how vaccination protects an individual against a specific disease.

[4 marks]

(c) Explain why antibiotics cannot be used to treat viral diseases.

[2 marks]

Total for Question 5

Question 6

(a) Compare aerobic and anaerobic respiration in terms of oxygen use, products, and energy released.

[3 marks]

(b) A student runs a 100 m race. After the race, she breathes heavily for several minutes. Explain why.

[3 marks]
