# OCR Gateway GCSE Biology A

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

Foundation Tier — Combined Science · Time: 1 hour 15 minutes · Total: 70 marks

**Foundation Tier — Combined 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: 70

### 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]

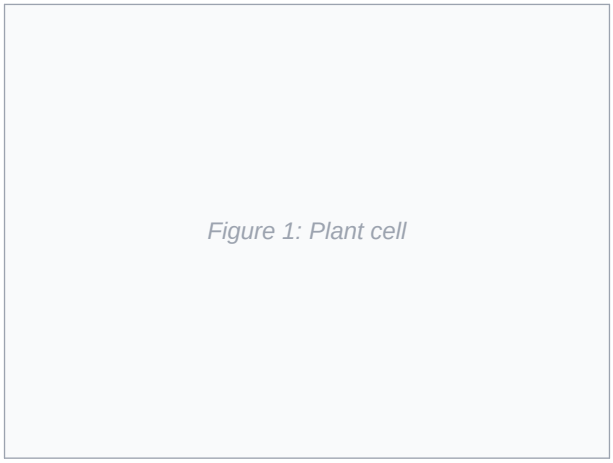
Tick **ONE** box.

- ☐ 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]

**(c)** Describe the structure of the villi in the small intestine and explain how they are adapted for absorption.

[3 marks]

Total for Question 6

## Question 7

**(a)** Describe the role of the immune system in protecting the body against a new bacterial pathogen that enters the body for the first time. Include the non-specific and specific immune responses.

[6 marks]

Total for Question 7

**END OF QUESTIONS · Total marks: 47**