AQA GCSE Biology

Paper 1: Cell Biology, Organisation, Infection & Response, Bioenergetics

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 structure is found in a plant cell but NOT in an animal cell?

[1 mark]

Tick **ONE** box.

- ☐ A. Nucleus
- ☐ B. Cell wall
- ☐ C. Mitochondrion
- ☐ D. Ribosome

(b) What is the function of mitochondria?

[1 mark]

Tick **ONE** box.

- ☐ A. Protein synthesis
- ☐ B. Photosynthesis
- ☐ C. Aerobic respiration
- ☐ D. Cell division

(c) Which process moves substances from an area of LOW concentration to an area of HIGH concentration?

[1 mark]

Tick **ONE** box.

- ☐ A. Diffusion
- ☐ B. Osmosis
- ☐ C. Active transport
- ☐ D. Evaporation

(d) Which of the following is a product of photosynthesis?

[1 mark]

Tick **ONE** box.

- ☐ A. Carbon dioxide
- ☐ B. Water
- ☐ C. Glucose
- ☐ D. Nitrogen

Total for Question 1 ☐

Question 2

Figure 1 shows a plant cell viewed under a microscope.

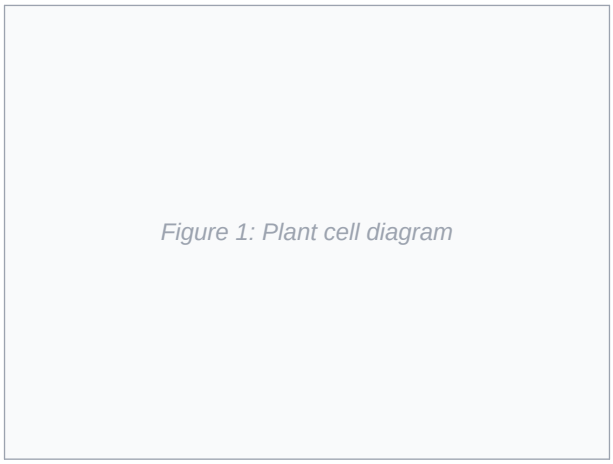


Figure 1: Plant cell diagram

(a) Name THREE structures that can be seen in a plant cell but NOT in an animal cell.

[3 marks]

(b) The image of the cell in Figure 1 is 60 mm long. The actual cell is 0.2 mm long. Calculate the magnification.

[2 marks]

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

[2 marks]

Total for Question 2

Question 3

(a) What is meant by the term "diffusion"?

[2 marks]

(b) A student places a potato chip in a concentrated salt solution. After 30 minutes the potato chip has decreased in mass. Explain why.

[3 marks]

(c) State TWO differences between diffusion and active transport.

[2 marks]

Total for Question 3

Question 4

Enzymes are biological catalysts that speed up chemical reactions in the body.

(a) What is meant by the term "active site" of an enzyme?

[2 marks]

(b) A student measures the rate of an enzyme-controlled reaction at different temperatures. Describe how temperature affects enzyme activity, including what happens above the optimum temperature.

[3 marks]

(c) Name the enzyme that digests starch and state where in the digestive system it is produced.

[2 marks]

Total for Question 4

Question 5

The heart pumps blood around the body in a double circulatory system.

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

[2 marks]

(b) Describe how coronary heart disease can develop. State ONE treatment.

[3 marks]

(c) Compare the structure of an artery with a vein. State ONE similarity and ONE difference.

[2 marks]

Total for Question 5

Question 6

Bacteria and viruses are two types of pathogen that can cause communicable diseases.

(a) Describe TWO ways in which bacteria cause disease.

[2 marks]

(b) State why antibiotics are effective against bacterial infections but NOT viral infections.

[1 mark]

(c) Explain how vaccination protects people against disease.

[4 marks]

(d) Explain what is meant by "herd immunity."

[2 marks]

Total for Question 6

Question 7

Photosynthesis is the process that allows plants to make their own food.

(a) Write the word equation for photosynthesis.

[2 marks]

(b) Name THREE limiting factors that can reduce the rate of photosynthesis.

[3 marks]

(c) Explain why a greenhouse grower might increase the temperature and carbon dioxide concentration inside the greenhouse.

[4 marks]

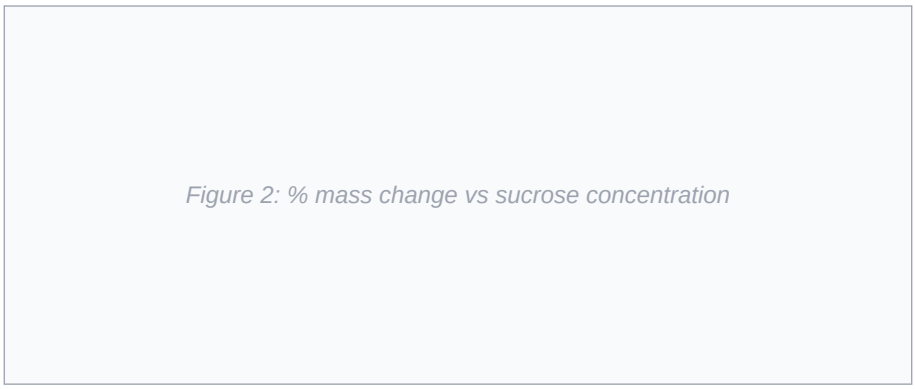
(d) Name TWO ways in which a plant uses the glucose produced during photosynthesis.

[2 marks]

Total for Question 7

Question 8

Figure 2 shows the results of a potato osmosis experiment.



(a) From Figure 2, state the sucrose concentration at which there is no change in mass. Explain your answer.

[2 marks]

(b) A potato chip is placed in a concentrated sucrose solution. Use the term "osmosis" in your explanation of what happens to the chip.

[3 marks]

Total for Question 8

Question 9

This question is about respiration.

(a) Write the word equation for aerobic respiration.

[2 marks]

(b) State TWO differences between aerobic and anaerobic respiration.

[2 marks]

(c) A student does vigorous exercise for 5 minutes. Her heart rate and breathing rate stay elevated for several minutes after she stops exercising. Explain why.

[3 marks]

Total for Question 9

Question 10

(a) Describe the role of white blood cells in protecting the body against disease. Include in your answer the difference between specific and non-specific immune responses.

[6 marks]

Total for Question 10

END OF QUESTIONS · Total marks: 70