

Pearson Edexcel GCSE (9-1) Biology

Paper 1: Key Concepts, Cells & Control, Genetics, Natural Selection, Health & Disease (Topics 1–5)

Foundation Tier — Combined Science · Time: 1 hour 10 minutes · Total: 60 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: 60

Question 1

(a) What is the function of chloroplasts?

[1 mark]

Tick **ONE** box.

- A. Site of aerobic respiration
- B. Site of protein synthesis
- C. Site of photosynthesis
- D. Controls what enters and leaves the cell

(b) Which of the following correctly describes osmosis?

[1 mark]

Tick **ONE** box.

- A. Movement of any molecule from high to low concentration
- B. Movement of water molecules from high to low water potential through a partially permeable membrane
- C. Movement of glucose from the gut into the blood
- D. Movement of minerals from soil into root hair cells

(c) Which type of drug is effective against bacterial infections?

[1 mark]

Tick **ONE** box.

- A. Antivirals
- B. Painkillers
- C. Antibiotics
- D. Statins

(d) Cystic fibrosis is caused by which type of allele?

[1 mark]

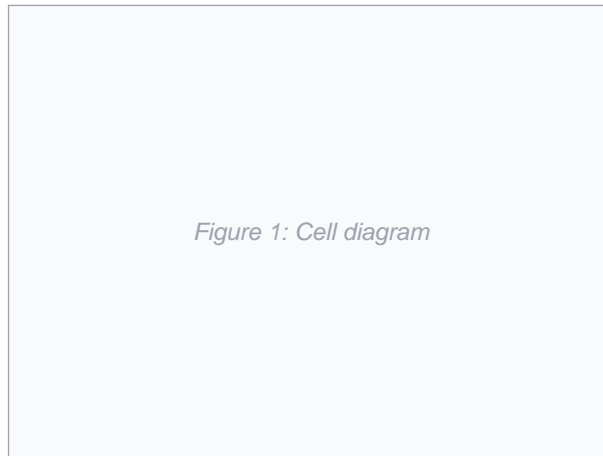
Tick **ONE** box.

- A. Dominant
- B. Recessive
- C. Co-dominant
- D. Sex-linked

Total for Question 1

Question 2

The diagram shows a eukaryotic cell.



(a) Identify THREE structures found in an animal cell. For each, give ONE function.

[3 marks]

(b) State TWO structures that are present in a plant cell but NOT in the cell shown.

[2 marks]

Total for Question 2

Question 3

A student investigates osmosis using potato cylinders placed in sucrose solutions of different concentrations.

(a) Define osmosis.

[2 marks]

(b) A potato cylinder placed in a concentrated sucrose solution decreases in mass. Explain why.

[3 marks]

(c) State TWO variables the student should control in this investigation.

[2 marks]

Total for Question 3

Question 4

Enzymes control chemical reactions in living organisms.

(a) Explain what is meant by the term "active site" of an enzyme.

[2 marks]

(b) Describe the effect of temperature on enzyme activity. Include in your answer what happens above the optimum temperature.

[3 marks]

(c) Name the enzyme that digests proteins. State the products of this digestion.

[2 marks]

Question 5

Vaccination has been used to greatly reduce the incidence of many communicable diseases.

(a) Explain how a vaccine protects a person against a specific disease.

[4 marks]

(b) Explain what is meant by "herd immunity" and why it is important.

[2 marks]

(c) State why antibiotics are NOT effective against viral diseases like influenza.

[1 mark]

Question 6

This question is about genetic inheritance.

(a) What is meant by a "dominant allele"?

[1 mark]

(b) Cystic fibrosis is caused by a recessive allele (f). Two carrier parents (Ff x Ff) have a child. Use a Punnett square to calculate the probability that the child will be a carrier (Ff).

[3 marks]
