

Organisation of the organism practice questions

11 questions • 27 marks • mark scheme at the back

For Cambridge IGCSE Combined Science 0653. **Supplement** is Extended content, only examined on Papers 2 and 4.

Name

Total / 27

Cell structure Spec B2.1

1 Which structure is found in a plant cell but not in an animal cell? [1 mark]

- A. ☐ Nucleus
- B. ☐ Ribosome
- C. ☐ Chloroplast
- D. ☐ Mitochondrion

2 Describe three ways in which a plant cell differs from an animal cell. [3 marks]

3 Which statement about the DNA in a bacterial cell is correct? [1 mark]

- A. ☐ It is enclosed in a nucleus.
- B. ☐ It is circular and lies free in the cytoplasm.
- C. ☐ It is found only in the mitochondria.
- D. ☐ It is absent.

4 State the function of each of the following structures in a cell.

[4 marks]

Cell structures	
Structure	Function
Cell membrane	
Ribosome	
Mitochondrion	
Chloroplast	

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5 **Supplement**

[3 marks]

Complete the table by stating the function of each specialised cell.

Specialised cells	
Cell	Function
Palisade mesophyll cell	
Neurone	
Root hair cell	

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6 Describe what is meant by the terms tissue and organ. Give an example of each.

[4 marks]

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Size of specimens Spec B2.2

- 7

Which formula is used to calculate magnification?

[1 mark]
- A . ☐

actual size ÷ image size
- B . ☐

image size × actual size
- C . ☐

image size – actual size
- D . ☐

image size ÷ actual size

- 8

A drawing of a root hair cell is 48 mm long. The actual length of the cell is 0.24 mm. Calculate the magnification of the drawing.

[2 marks]

Answer =

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- 9

A photograph of a cell has a magnification of × 800. The cell in the photograph is 24 mm wide. Calculate the actual width of the cell in mm. Show your working.

[3 marks]

Answer =

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- 10

Supplement

(a) Convert 0.08 mm into µm. [1] (b) A student measures a nucleus in a drawing as 12 mm. The actual width of the nucleus is 6 µm. Calculate the magnification of the drawing. [3]

[4 marks]

Answer =

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- 11** The image of a cell is 60 mm wide. The magnification is $\times 200$. What is the actual width of the cell? **[1 mark]**
- A. ☐ 0.003 mm
 - B. ☐ 3 mm
 - C. ☐ 0.3 mm
 - D. ☐ 12 000 mm

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

C C (chloroplast) (1)

2. [3]

- plant cell has a cell wall, animal cell does not (1)
- plant cell has chloroplasts, animal cell does not (1)
- plant cell has a large vacuole (containing cell sap), animal cell does not (have a large vacuole) (1)
- allow 'cellulose' for cell wall; ignore 'plants have a cell membrane' (both have one)
- Max 3

3. [1]

B B (1)

4. [4]

- cell membrane: controls movement of substances into and out of the cell (1) allow controls what enters and leaves; ignore 'protects the cell'
- ribosome: makes proteins / protein synthesis (1)
- mitochondrion: aerobic respiration / releases energy (1)
- chloroplast: photosynthesis / absorbs light energy for photosynthesis (1) ignore 'contains chlorophyll' alone

5. [3] **Supplement**

- palisade mesophyll cell: photosynthesis (1)
- neurone: conduction of electrical impulses (1)
- root hair cell: absorption (of water and mineral ions) (1)

6. [4]

- tissue: a group of cells with similar structures (1)
- working together to perform a shared function (1)
- organ: a structure made up of a group of tissues (1)
- working together to perform specific functions (1)
- example of a tissue, e.g. muscle tissue / palisade mesophyll (1)
- example of an organ, e.g. stomach / heart / leaf (1)
- Max 4

7. [1]

D D (1)

8. [2]

- $48 \div 0.24$ (1)
- $\times 200$ (1) correct answer with no working gets 2 marks; ignore $\times$ sign; reject units (e.g. 200 mm)

9. [3]

- actual size = image size $\div$ magnification (1)
- $24 \div 800$ (1)
- 0.03 mm (1) correct answer with no working gets 3 marks

10. [4] Supplement

- (a) $80\text{ }\mu\text{m}$ (1)
- (b) convert 12 mm to $12\text{ }000\text{ }\mu\text{m}$, or $6\text{ }\mu\text{m}$ to 0.006 mm (1)
- $12\text{ }000 \div 6$ or $12 \div 0.006$ (1)
- $\times 2000$ (1) correct answer with no working gets 3 marks; reject units

11. [1]

C C (0.3 mm) (1)