

# GCSE

BIOLOGY

AQA - COMBINED SCIENCE

MARK SCHEME

---

B1

CELL BIOLOGY

TEST 1

## Mark schemes

1

(a) mitochondria

1

ribosomes

1

(b) to repair the muscles

1

(c)  $\frac{5}{100} \times 21$

*allow*  $\frac{1}{20} \times 21$

1

1.05 (hours)

*allow for 2 marks 1 hour 3 minutes or 1:03 (hours)*

1

*an answer of 1.05 hours scores 2 marks*

(d)  $\frac{7}{20} \times 100$

*allow*  $5 \times 7$

1

35 (%)

1

*an answer of 53 (%) scores 2 marks*

(e) 78

1

(f) fertilisation

1

[9]

2

(a) cell membrane

*extra boxes ticked negates mark*

1

(b) nucleus

*extra boxes ticked negates mark*

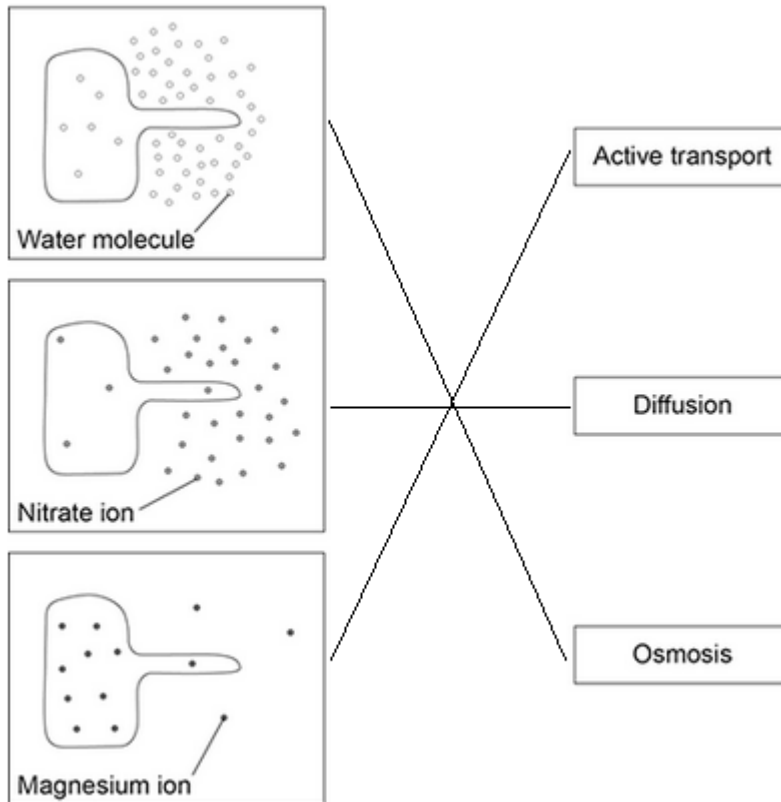
1

(c) has a tail so it can swim (to an egg)

*accept has many mitochondria to release energy to swim*

1

(d)



*all three correct for 2 marks  
one or two correct for 1 mark*

2

[5]

3

(a) 8 (micrometres)

1

(b) red blood cell(s)

1

white blood cell(s)

*accept named cell*

*eg phagocyte / lymphocyte*

1

(plasma)

transports proteins / dissolved substances / food (molecules) / urea / hormones / blood cells

1

(c) any **one** from:

- you could lose a lot of blood
- bleed internally

*allow bleeding would not stop*

*allow could bleed to death*

1

[5]

4

(a) D

1

any **one** from:

- has chloroplasts
- has a (large) vacuole  
*ignore has a (cell) wall*

1

(b) B

1

does **not** have a (cell) wall

*allow has only a nucleus, (cell) membrane **and** cytoplasm*

1

(c) C

1

any **one** from:

- genetic material is not in a nucleus  
*allow no nucleus*
- has a single loop of DNA

1

(d) real size = 25 / 100 000

1

0.00025

1

(conversion to) 0.25 (µm)

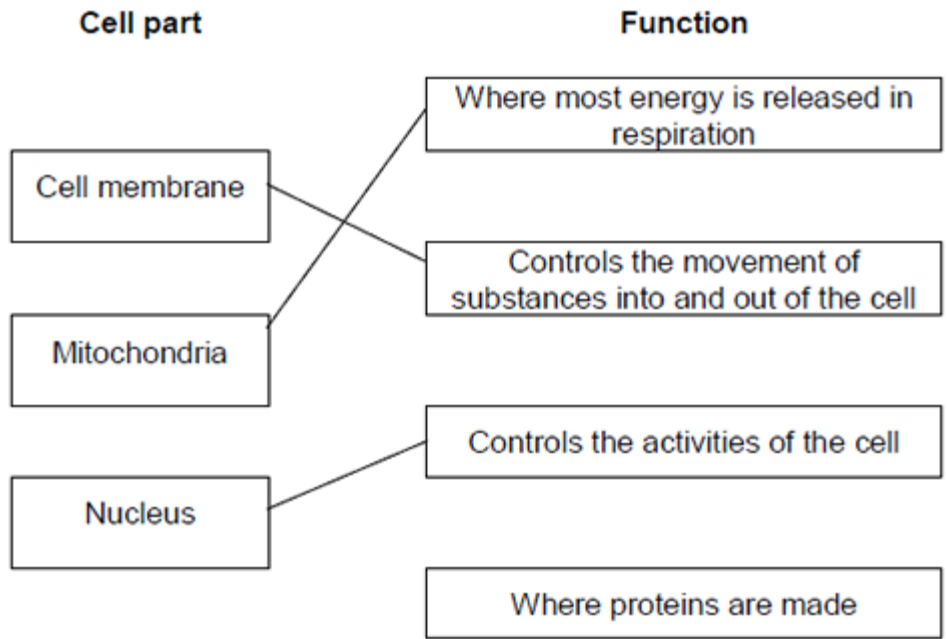
*allow 0.25 (µm) with no working shown for 3 marks*

1

[9]

5

(a)



*extra lines cancel*

3

(b) Cell wall

*in either order*

1

Chloroplast

*allow (permanent) vacuole*

1

[5]

6

(a) diffusion

1

active transport

1

*this order only*

(b) (i) concentration (of sugar) in the bag was higher (than in the drink)

*allow concentration (of sugar) in the drink was lower (than in the bag)*

**or**

higher concentration of water outside the bag **or** in the drink / boiling tube

*allow higher water potential outside the bag **or** lower water potential inside the bag*

1

(so) water moved in (to the tubing)

*allow water moves down **its** concentration gradient*

*do **not** allow sugar moving*

1

by osmosis

*allow diffusion (of water)*

*do **not** allow sugar moving by osmosis **or** water moving by active transport*

1

(ii) **B**

1

(iii) close(st) to the concentration in the bag **or** to 5%

*allow small(est) diffusion gradient **or** close(st) to an equilibrium*

1

(so rate of) diffusion / osmosis is slow

*allow (so) less water moves in (to the bag)*

*ignore ref. to sugar*

1

**[8]**

**7**

(a) (i) nucleus

1

(ii) diffusion

1

(b) increases / larger surface area (for diffusion)

*ignore large surface area to volume ratio*

1

(c) (i) sugar / glucose

*accept amino acids / other named monosaccharides*

1

(ii) against a concentration gradient

**or**

from low to high concentration

1

(iii) (active transport requires) energy

1

(from) respiration

1

(d) minerals / ions

*accept named ion ignore nutrients*

**do not accept** water

1

**[8]**