

Cell Structure

Mark Scheme

| | |
|-------------------------|-------------------------------------|
| Level | GCSE (9-1) |
| Subject | Combined Science: Trilogy - Biology |
| Exam Board | AQA |
| Topic | 4.1 Cell Biology |
| Sub-Topic | Cell Structure |
| Difficulty Level | Bronze Level |
| Booklet | Mark Scheme |

Time Allowed: 56 minutes

Score: /54

Percentage: /100

Grade Boundaries:

M1.(a) cell membrane

extra boxes ticked negates mark

1

(b) nucleus

extra boxes ticked negates mark

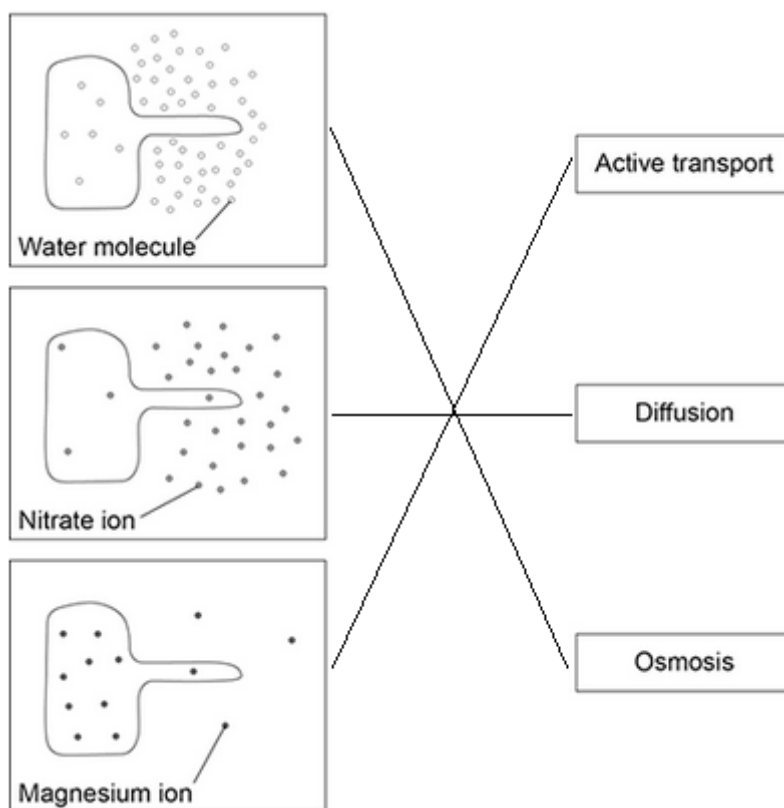
1

(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]

M2.(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

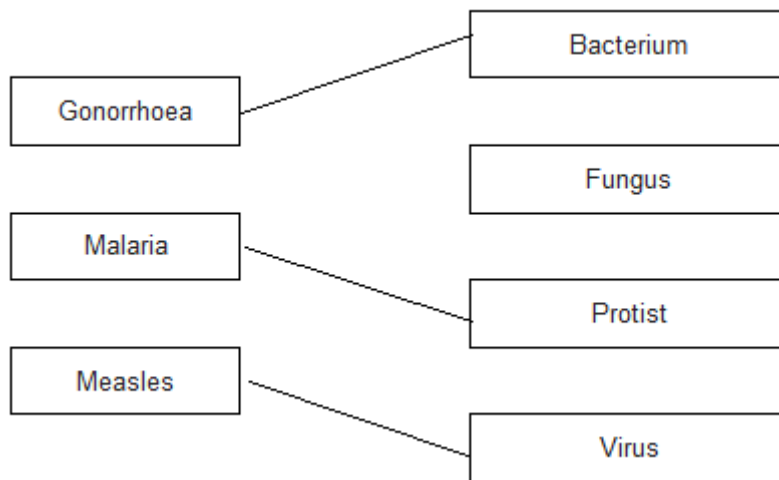
(c) any **one** from:

- you could lose a lot of blood
- bleed internally

allow bleeding would not stop
allow could bleed to death 1

[5]

M3.(a)



3

(b) (trachea) has mucus

1

to trap pathogens

1

(trachea) has cilia

1

to move mucus out of trachea

1

(c) **dependent variable:**
number of times mosquitoes landed on socks

1

control variable:
any **one** from:

- number of mosquitoes in each container
- length of time socks worn
- dampness of socks
- same type of socks

- size of container
- time
- temperature
- species of mosquito
- age of mosquito

1

- (d) use worn socks
or
use chemical from worn socks

1

to attract / trap infected mosquitoes

1

or accept:

wear clean socks / change socks regularly (1)

to reduce the chance of attracting mosquitoes (1)

- (e) less chlorophyll present

1

(so) less light absorbed

1

(so) reduced photosynthesis

or

(so) less sugar / food made

1

[14]

M4.(a) animal cells also have cell membrane

1

- (b) 1945–1955

allow 1946–1956

or 1947–1957

1

(c) $(2 / 22 =) 9.\overset{\bullet}{0}\overset{\bullet}{9}$

allow 9.09 (%) or 9 (%) with no working shown for 1 mark

1

9.1 (%)

allow 9.1 (%) with no working shown for 2 marks

1

(d)

| More likely | Less likely |
|-------------|-------------|
| | ✓ |
| | ✓ |
| ✓ | |
| ✓ | |
| ✓ | |

allow 3 marks for 4 correct

allow 2 marks for 3 correct

allow 1 mark for 2 correct

4

more than one tick in a row negates a mark

[8]

M5.(a) A = nucleus

allow phonetic spelling

1

B = (cell) membrane

1

- (b) for repair / growth **or** to replace cells
ignore new cells / skin

1

- (c) (i) embryos

1

- (ii) paralysis

1

[5]

M6.(a)

| Structure | Organ | Organ system | Tissue |
|--|-------|--------------|--------|
| Stomach | ✓ | | |
| Cells lining the stomach | | | ✓ |
| Mouth, oesophagus, stomach, liver, pancreas, small and large intestine | | ✓ | |

all 3 correct = 2 marks
2 correct = 1 mark
1 or 0 correct = 0 marks

2

- (b) (i) diffusion
allow phonetic spelling

1

- (ii) glucose

1

- (iii) mitochondria

1

[5]

M7.(a) (i) A = (cell) membrane

1

B = cytoplasm

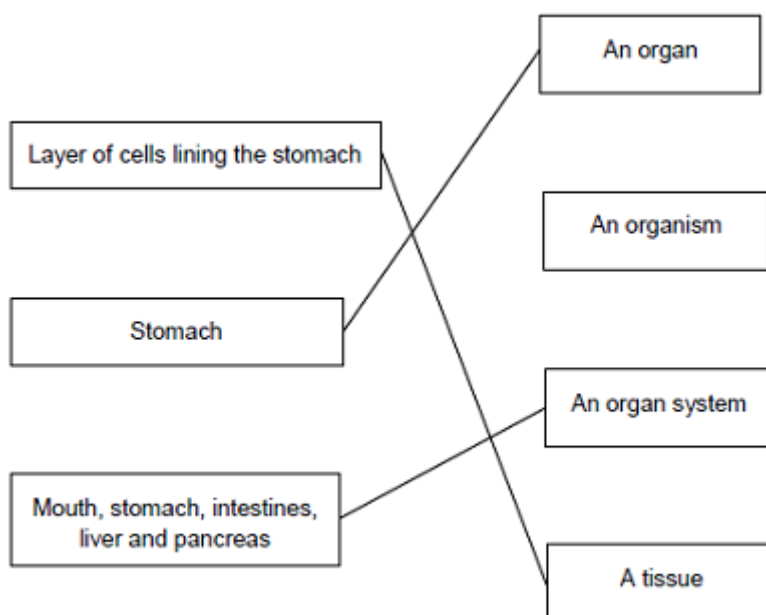
*do **not** accept cytoplast*

1

(ii) To control the activities of the cell

1

(b)



extra lines cancel

3

[6]

M8.(a) (i) A = nucleus

1

B = (cell) membrane

1

(ii) any **two** from:

ignore shape

- no (cell) wall
- no (large / permanent) vacuole
- no chloroplasts / chlorophyll

2

(b) because high to low oxygen / concentration **or** down gradient

allow 'more / a lot of oxygen molecules outside'

ignore along / across gradient

1

(c) a tissue

1

[6]