

MARK SCHEME

GCSE

BIOLOGY

AQA - COMBINED SCIENCE

B 3 - TEST 1

INFECTION AND RESPONSE

Beginner

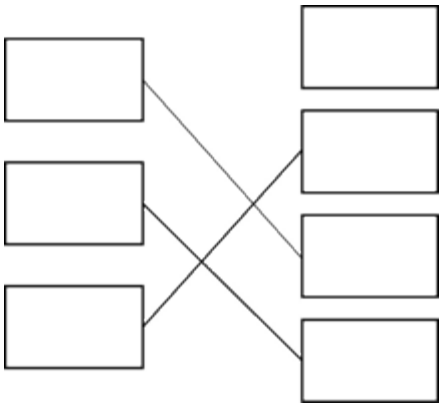
Mark schemes

- 1.** (a) decrease in number of deaths (after vaccination started) 1
- (b) in correct sequence:
- bacteria 1
- white blood cells 1
- antibodies 1

[4]

- 2.** (a) toxins 1
- (b) (i) bacteria 1
- (ii) mutate 1
- (iii) new / different antibiotic
allow new / different drug
*do **not** allow vaccine* 1

[4]

- 3.** (a)
- 
- one mark for each correct line*
extra line from drug negates mark

3

(b) stop the trial

1

second mark scores only if first mark correct

side effects too severe

allow people might die / get ill / harmed

or

(too) many people had side effects

allow use of numbers from table

ignore itchy skin

1

[5]

4.

(a) (i) 56

accept 54 – 58

1

(ii) increased

1

reasonable qualification eg slowly then more quickly

or

to 174 / 176

or

by 138 / 140

1

(b) any **two** from:

- no immunity **or** antibodies ineffective
accept no resistance
- no vaccines **or** humans not immunised
- idea of large scale contact **or** large scale travel
*do **not** accept passed on*
ignore no cure

2

[5]

5.

(a) virus

allow viral

*ignore communicable / airborne / microorganism /
microbe*

*do **not** accept bacteria / bacterial / fungus / fungal /
protist*

1

(b) white blood cells

1

(c) 57

allow any answer in range 55–59

1

(d) 85

allow any answer in range 84–86

1

(e) children are less likely to come into contact with someone with the disease

1

more people will have the correct antibodies

1

(f) any **two** from:

- cost (to the NHS / government)
- money saved through not treating people with chickenpox
- how effective the vaccine is
- severity of the disease
- less effect of disease on people with weaker immune systems / elderly / HIV or on unborn babies

2

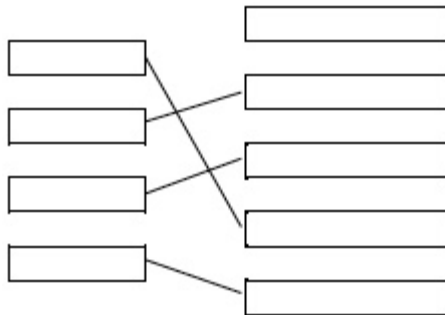
[8]

6.

(a) salmonella

1

(b)



1
1
1
1

(c) lower concentration of antibiotic / chemical further from the fungus

allow less antibiotic / chemical further from the fungus

1

- (d) lead to mass production of antibiotics
or
 lead to development of other antibiotics

1

reduced infection by bacteria
or
 antibiotics have saved many lives

1

[8]

7.

- (a) (i) small amounts of dead pathogens

1

- (ii) decrease

1

by 60 (%)

allow from 70(%) to 10(%)

allow other correct data treatment

1

- (b) (i) penicillin

1

- (ii) any **two** from:

- antibiotics only kill bacteria
allow antibiotics do not kill viruses
- some bacteria are resistant (to antibiotics)
allow MRSA not killed by antibiotics
- (correct) antibiotics not always used
allow course not completed
- deficiency disease(s) not caused by bacteria **or** cannot be treated by antibiotics
- inherited disease(s) not caused by bacteria **or** cannot be treated by antibiotics
- 'lifestyle' diseases not caused by bacteria **or** cannot be treated by antibiotics
eg heart disease / cancer

*if no other mark given allow 1 mark for not all diseases are caused by bacteria **or** some diseases are caused by viruses*

2

- (c) bacteria grow faster

allow this is body temp (at which pathogens grow)

1

[7]

8.

- (a) (i) antibiotic or named antibiotic

ignore antibodies

accept antiseptic

*do **not** accept disinfectant*

1

- (ii) painkillers

accept named painkillers eg aspirin

1

(b) (i) 5.5 / 5 ½ weeks

1

(ii) rose gains 1 mark

rose, then fell then rose again gains 2 marks

a further 1 mark for **one** quantitative statement eg

- rose for 3 weeks / to 14–15 units
- dropped to 4 weeks / 9 units
- rose to 7 weeks / 64–65 units

3

(iii) (no)

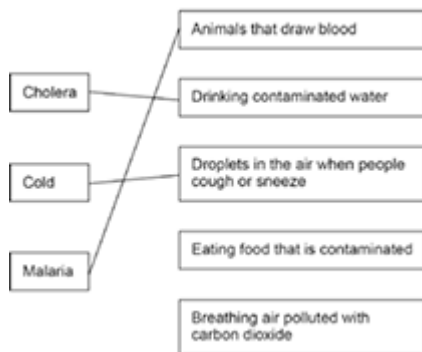
level begins to fall / is falling (after 7 weeks)

1

[7]

9.

(a) **Disease** **Way the disease is spread**



extra lines from left cancel the mark

3

(b) any **two** from:

- skin acts as a barrier
- blood clots (over cuts)
- nose (hairs) catch particles (breathed in)
- mucus (in trachea / bronchi) traps microorganisms
- acid in stomach kills microorganisms

2

(c) because measles is a virus

1

(d) 28 / twenty eight

± 0.5 small square tolerance

1

(e) 2.5

1

(f) number will decrease

1

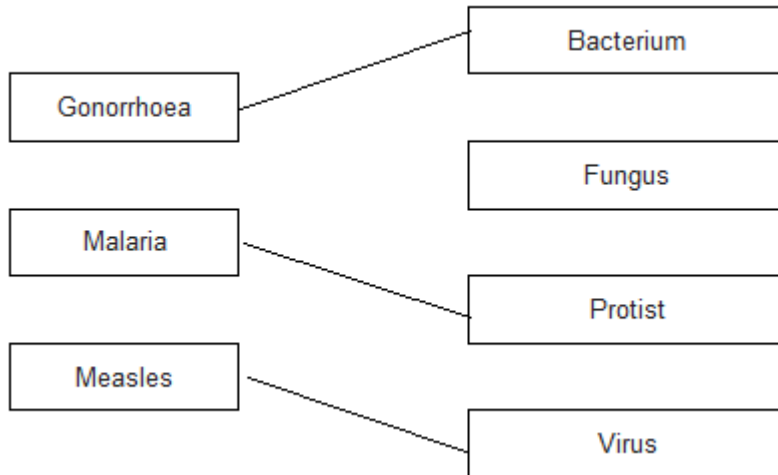
less likely to come into contact with someone with measles / the disease

1

[10]

10.

(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]