

MARK SCHEME

GCSE

BIOLOGY

AQA - TRIPLE SCIENCE

B 3 - TEST 1

INFECTION

Beginner

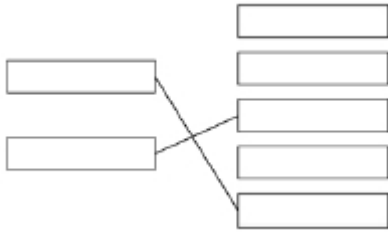
Mark schemes

1.

(a) bacteria

1

(b)



extra line from a drug negates the mark for that drug

2

(c) any **one** from:

- to check they are safe
- to check they are effective

allow to check they work or to check for the (right) dose

- to check for side effects

allow to check for toxicity

1

(d) testing on healthy volunteers

1

(e) **Level 2 (3-4 marks):**

Relevant points (reasons / causes) are identified, and there are attempts at logical linking.

Level 1 (1-2 marks):

Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.

0 marks:

No relevant content

Indicative content

- dead / inactive pathogen
- introduced to the body
- white blood cells respond
- produce antibodies
- antibodies are specific to pathogen
- antibodies produced quickly (on reinfection) / rapid response
- in larger quantities
- killing the pathogen

[9]

2.

(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 1
allow this is body temp (at which pathogens grow) 1

[7]

3. (a) (i) 64 1

(ii) 36
allow e.c.f from (i) i.e. 100 – answer given in (a)(i) 1

(iii) any **one** from:
• only considers 16-year-olds
ignore lack of evidence
allow does not refer to all ages
• only about some / 5 countries
allow does not refer to all countries. 1

(b) the more exercise done the healthier a person is
allow the more exercise done the higher the health rating
allow the less exercise done the lower the health rating 1

(c) having a high cholesterol level

1

(d) (i) antibodies

1

(ii) antibiotics

1

[7]

4.

(a) any **two** from:

ignore eating disorder

ignore cancer

• arthritis

accept worn joints

• diabetes

accept high blood sugar

• high blood pressure

ignore cholesterol

• heart disease / heart condition / heart attack / blood vessel disease

allow blood clots / strokes

2

(b) (i) $\frac{1}{4}$ or 0.25 or 25%

correct answer gains 2 marks

if answer incorrect, evidence of $1500 \div 6000$ gains 1 mark

25 without % gains 1 mark

2

(ii) majority / most / high proportion of people in trial lost mass / weight

ignore good results / it worked

1

[5]

5.

(a) antibodies

1

antitoxins

1

antibiotics

1

(b) any **two** from:

- measles
- mumps
- rubella / German measles

2

(c) less / low / no chance of getting named or all condition(s) if vaccinated

1

quantitative figure(s) eg 5 times less likely to get convulsions

1

[7]

6.

(a) pathogens

1

(b) (i) A disease affecting people in many countries

1

(ii) birds fly / migrate

accept converse

OR

human contact with birds more likely

birds not contained / difficult to control movement

OR

there are more birds (than pigs)

1

(c) (i) antibiotics (only) kill bacteria

ignore flu is caused by a virus unqualified

OR

antibiotics don't kill viruses

ignore virus resistant / immune

1

(ii) painkillers

accept any correct named painkiller, eg aspirin or paracetamol

allow antivirals / Tamiflu

ignore medicine / tablets

1

(iii) resistant

1

bacteria

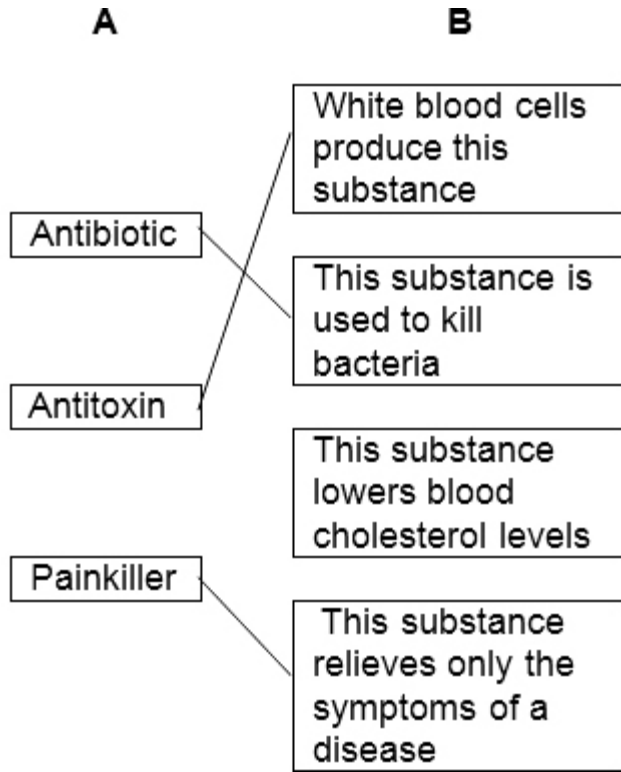
1

in this order

[7]

7.

(a)



1 mark for each correct line

mark each line from left hand box

two lines from left hand box cancels mark for that box

3

(b) inactive

allow weak / dead / un-living / safe

1

rubella

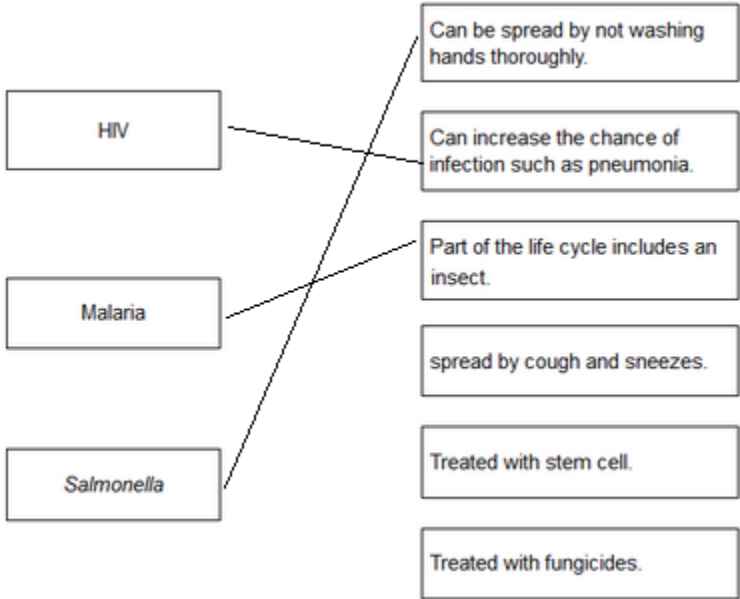
apply list principle, but ignore measles and mumps

1

[5]

8.

(a)



each extra line negates a mark

4

(b) pain when urinating

1

yellow discharge

1

(c) three correct plots

allow 1 mark for two correct plots

2

correctly drawn line

1

(d) any **three** from:

- (fairly) level / steady up to 2009
allow numbers of males fall (slightly) and females rise (slightly) up to 2009
- (there is a) rise after 2009
- males are (always) higher than females
- males rising faster than females
allow overall increase (from 2005 to 2013)

3

(e) HIV is a virus

1

(and) antibiotics are only effective against bacteria

or

antibiotics do not kill viruses

allow viruses live inside cells

1

[13]

9.

(a) leprosy

allow bone / blood cancer

ignore cancer

1

(b) (i) 6 / six

1

(ii) from 1120 to 5600

allow from 5600 to 1120

allow 4480 (alone)

1

(c) any **one** from:

ignore side effects, eg allergies

ignore safety / harm unqualified

• (test for) toxicity

allow poisonous

• (test for) dosage

allow idea of amount

• (test for) efficacy.

allow to see if it works

allow to check for interaction with other drugs

1

(d) (i) any **two** from:

ignore reference to cost / addiction

• more people take / use legal / non-prescribed drugs

• legal / non-prescribed drugs are (more) readily available

• alcohol causes liver / brain damage

or

tobacco causes cancer.

allow harmful effects of other named legal non-prescribed drugs

2

(ii) addiction / dependency

allow withdrawal or examples of symptoms of withdrawal (if attempting to stop)

1

[7]