



EXAM PAPERS PRACTICE

Boost your performance and confidence with these topic-based exam questions

Practice questions created by actual examiners and assessment experts

Detailed mark scheme

Suitable for all boards

Designed to test your ability and thoroughly prepare you

Level: IGCSE Oxford AQA Biology (9201)

Subject: Biology

Topic: IGCSE AQA Biology

Type: Mark Schemes

2002



1583

To be used by all students preparing for IGCSE Oxford AQA Biology (9201)
Students of other Boards may also find this useful

Biology

IGCSE AQA

Key skills



Mark schemes

1. (a) toxins / poisons (secreted by / from / in bacteria) 1
- (b) any **two** from:
- wash hands after using toilet / being sick
or
wash hands before preparing / handling food
or
do not prepare food (whilst infected)
ignore 'wash hands' unqualified
ignore reference to coughing / sneezing
 - isolate yourself
allow examples of how isolation could be achieved
 - disinfect clothes / surfaces
 - do not share utensils / cutlery / towels
- (c) antibiotics 2
allow named examples of antibiotics 1
- (d) immune system is damaged / weakened **or** immune system doesn't function properly 1
allow immunocompromised
allow lack of / no white blood cells 1
- white blood cells cannot kill bacteria / *Salmonella* (as effectively)
allow no / fewer antibodies so bacteria not killed or less phagocytosis so bacteria not killed or no / fewer antitoxins to counter toxins 1



(e) any **one** from:

- (give chickens) antibiotics
allow (give chickens) monoclonal antibodies
- don't sell infected chickens / eggs
allow don't sell the chickens / eggs
ignore don't sell chickens / eggs
- keep infected chickens isolated / indoors
allow keep the chickens indoors
ignore keep chickens indoors
- slaughter the infected chickens
ignore vaccination / chlorination / disinfection

1

(f) (cleaning liquid) **B**

and

greater reduction in number of bacteria (after cleaning) in both locations

ignore few bacteria in both locations

allow neither / both and idea of experimental error

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1

(g) radius (of area with no bacteria growing)

allow diameter (of the area with no bacteria growing)

ignore πr^2 unqualified

allow idea of placing agar plate onto graph paper and counting the squares not covered with bacteria

1

(h) repeat **and** look to see if results are similar

ignore repeat unqualified

*allow repeat **and** look to see if results are different*

allow repeat and see if there are anomalies

ignore repeat and identify anomalies

ignore repeat and compare unqualified

1



(i) any **one** from:

- toxicity / side / health effects
ignore harmful / dangerous
allow reference to allergies
- effect on other types of bacteria / pathogens
allow not tested on other types of bacteria
ignore germs
- interaction with other cleaners
- ease of use
- dilution factor of each cleaner (vs. cost)
ignore concentration unqualified
- time cleaner is effective for
ignore how long the cleaner lasts for
allow reference to odour of cleaning liquid
ignore reference to cost unqualified
ignore environmental effects / flammability

1

[11]

2.

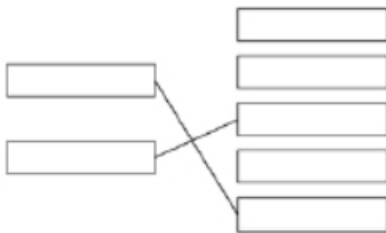
(a) bacteria

1

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(b)



extra line from a drug negates the mark for that drug



(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]

3.

(a) a fungus

1

(b) Level 3 (5-6 marks):

Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.

Level 2 (3-4 marks):

Relevant points (reasons / causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear.

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.

Level 0

No relevant content

Indicative content



| | defence | description of defence |
|----------------|---|---|
| animals | skin nose trachea / bronchi stomach white blood cells | sebum / oils to kill microbes dead layer difficult to penetrate hairs keep out dust and microbes mucus traps microbes cilia moves mucus (hydrochloric) acid kills bacteria produces antibodies produces antitoxins engulf microbes / phagocytosis |
| plants | cell wall waxy cuticle dead cells / bark production of antibacterial chemicals | tough / difficult to penetrate tough / difficult to penetrate fall off, taking pathogens with them kill bacteria |
| fungi | antibiotic production | kill bacteria |

(c) any three from:

- sterilise agar (before use)
- sterilise (Petri) dish before use
- disinfect bench (before use)
- pass inoculating loop (through flame)
- secure lid with (adhesive) tape

- minimise exposure of agar / culture to air / lift and replace lid as quickly as possible

allow:

- dip loop into ethanol (after flaming)
- keep the lid on the plate for as long as possible

or

minimise exposure of agar to air

or

only tilt the lid off (rather than remove it)

- flame the neck of the bottle

(d) to prevent the growth of a harmful pathogen

3

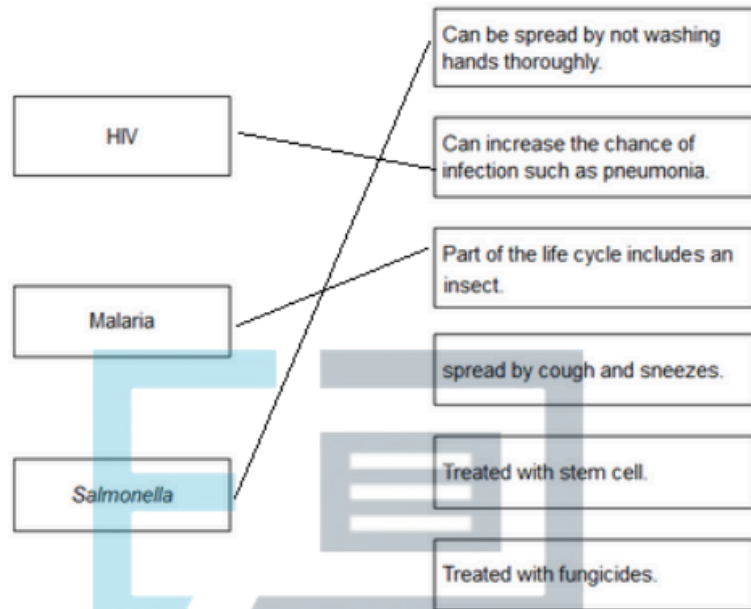
1

[11]



4.

(a)



each extra line negates a mark

(b) pain when urinating

yellow discharge

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(c) three correct plots

allow 1 mark for two correct plots

correctly drawn line

4

1

1

2

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]

5.

- (a) to kill virus
or
to prevent virus spreading

1

- (b) take (stem) cells from meristem

or

tissue culture

allow take cuttings

1

- (c) use Benedict's solution

1

glucoses turns solution blue to orange

1

(d) **Level 2 (3–4 marks):**

A detailed and coherent explanation is provided. The student makes logical links between clearly identified, relevant points that explain why plants with TMV have stunted growth.

Level 1 (1–2 marks):

Simple statements are made, but not precisely. The logic is unclear.

0 marks:

No relevant content.

Indicative content

- less photosynthesis because of lack of chlorophyll
- therefore less glucose made

So

- less energy released for growth

- because glucose is needed for respiration

and / or

- therefore less amino acids / proteins / cellulose for growth
- because glucose is needed for making amino acids / proteins / cellulose