

Name of the Student: _____

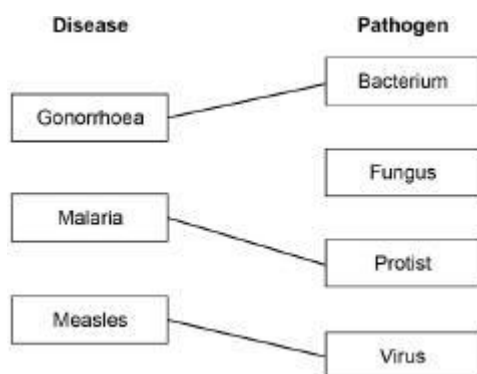
Max. Marks : 23 Marks

Time : 23 Minutes

Mark Schemes

Q1.

(a)



do **not** accept more than one line from a box on the left

1
1
1

(b) reduces breeding / reproduction (in mosquitos)

allow fewer (mosquito) eggs fertilised

allow no offspring produced (by sterile mosquitos)

1

(so) fewer mosquitos to bite people

or

(so) fewer mosquitos to pass on pathogen / protist

allow (so) less likely to be bitten by mosquitos

ignore fewer mosquitos to pass on malaria / disease

1

(c) electron microscope

ignore microscope unqualified

ignore scanning / transmission

do **not** accept light microscope

1

(d) (fungal spore)

(16 μm $\Rightarrow$ 1.6×10^{-5} m)

or

(virus)

(2.5×10^{-7} m $\Rightarrow$ 0.25 μm)

1

$$1.6 \times 10^{-5}$$

or

$$\frac{16}{0.25}$$

allow $\frac{0.000\ 016}{0.000\ 000\ 25}$

allow incorrect attempt at conversion or not converted
value for length correctly substituted

1

(=) 64

allow a correctly calculated value using an incorrectly or
not converted value for length

allow **1** mark **only** for $\frac{16}{2.5} = 6.4$

1

(e) discolouration in leaves

or

less chlorophyll in leaves

the idea of less is only needed once

ignore mosaic pattern of leaves unqualified

1

(so) reduced photosynthesis

allow less light absorbed

1

(so) less glucose produced so less amino acids / proteins / cellulose made

allow (so) less glucose so less energy for synthesis of
chemicals

or

allow (so) less glucose for respiration (so) less energy
transferred for growth

1

[12]

Q2.

- (a) 3 years 1
- (b) any **one** from:
- to reduce any risk
allow idea (if it is unsafe) less harm will be caused with a lower dose
ignore that it may be unsafe / dangerous unqualified
 - to look for side effects
ignore unknown side effects unqualified
- 1
- (c) too great a risk for ill person / patient
- allow may make their condition worse*
 - allow less risk to healthy person*
 - ignore references to immune system*
- 1
- patient might be taking another drug
- allow unhealthy person might be taking another drug*
- or**
- side effects of drug are easier to identify
- ignore to see side effects unqualified*
- 1
- (d) any **one** from:
- to prevent false claims
 - to make sure the results / conclusions are correct / valid
ignore references to accuracy, reliability or precision
 - to avoid bias
- 1
- (e) **Level 3:** A judgement, strongly linked and logically supported by a sufficient range of correct reasons, is given. 5-6

Level 2: Some logically linked reasons are given. There may also be a simple judgement. 3-4

Level 1: Relevant points are made. They are not logically linked. 1-2

No relevant content

0

Indicative content

arguments for use:

- will save the NHS money
- (approximately) 20 times as many people or 19 more people can be treated compared to Drug A
- (approximately) 29 times as many people can be treated compared to Drug B (allow 28 times **or** 28 / 27 more people)
- more people can be treated for the same cost
- patients will be treated sooner
- improves patient choice
- used in other countries so likely to be effective

- used in other countries so likely to be safe
- likely to have been tested in other countries

arguments against use:

- injections of drug not tested (in UK)
- cannot be sure it is as effective as Drug A / Drug B
- cannot be sure if it is safe to use
- may have unknown side effects
- doctors cannot be confident in prescribing Drug C
- goes against regulations / laws regulating drug development / use
- might set a precedent for other drugs not to be fully tested
- might set a precedent for other non- approved / unlicensed drugs to be used

Need advantages and disadvantages for Level 2

[11]